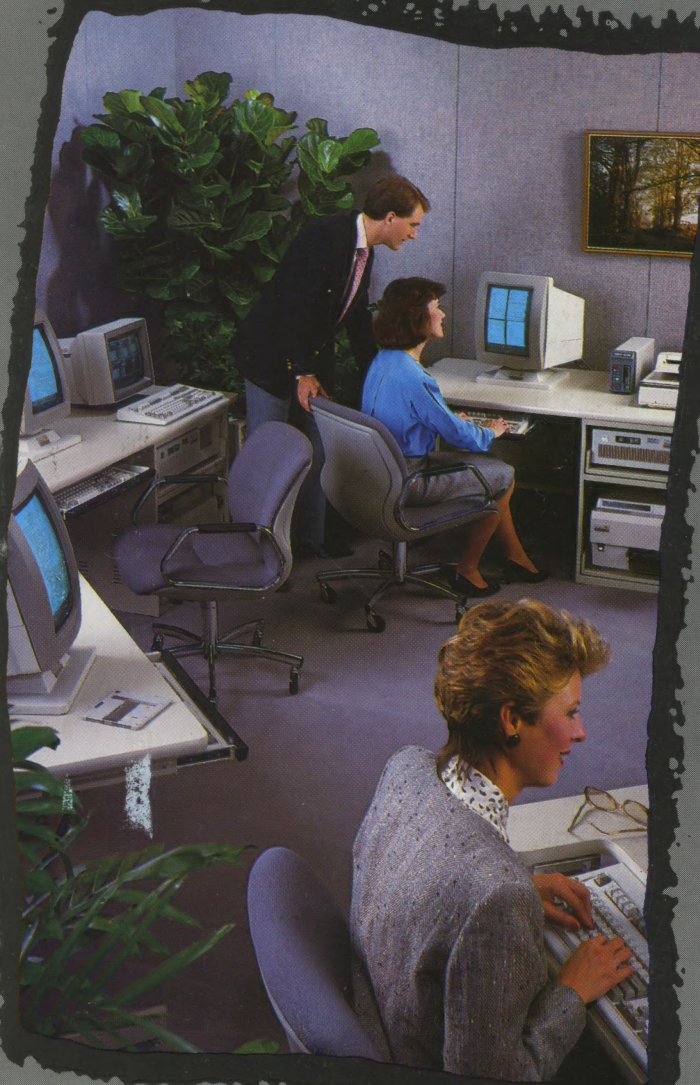


February 1989

The Office

Magazine of Information Systems and Management



**New Wrinkles
In Database
Management**

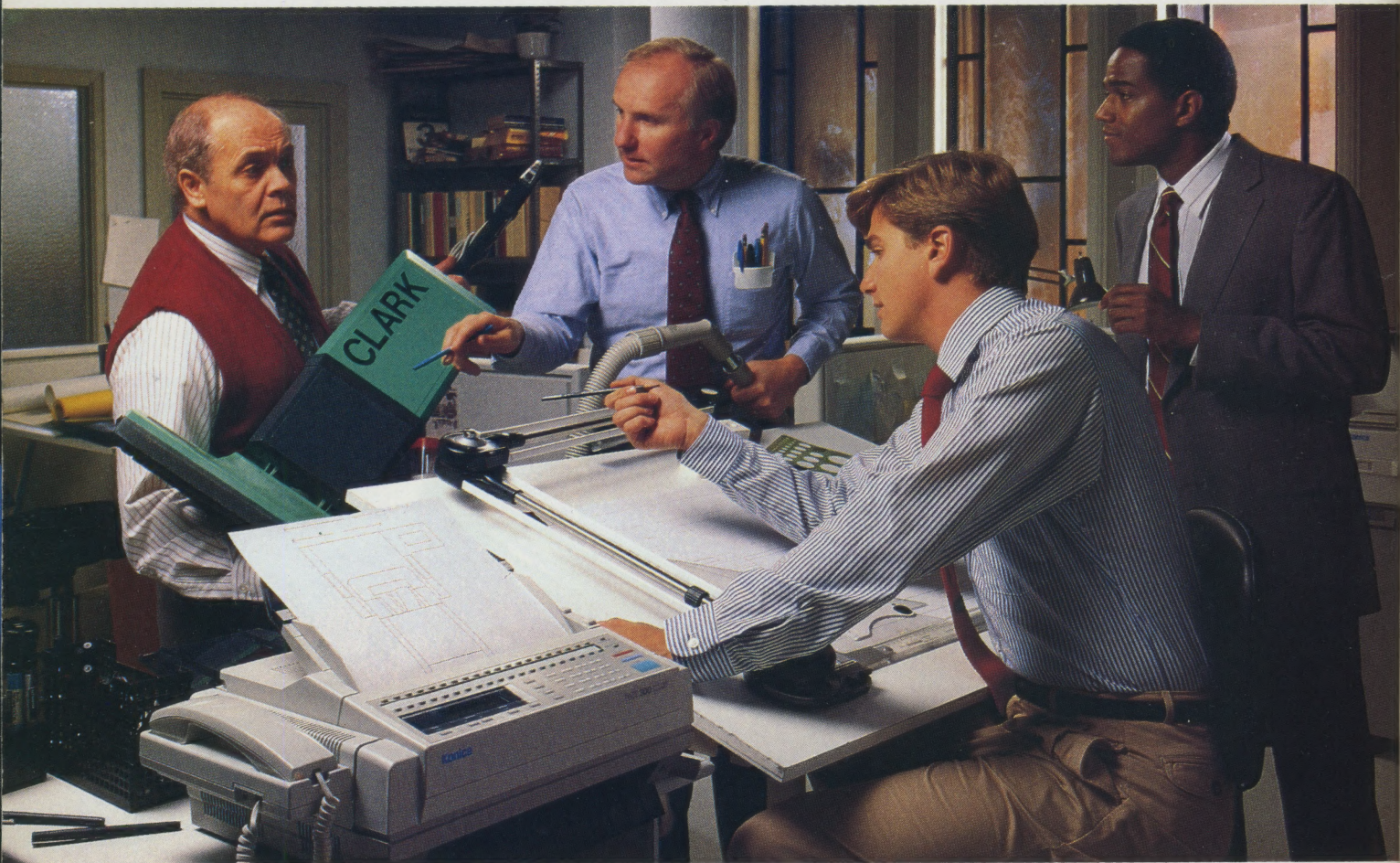
**Full-Text Retrieval:
Reaching PC Level**

**How to Manage
A Phone System**

**Expanding the
Scope of A-I**

Fax and the Corporate Network

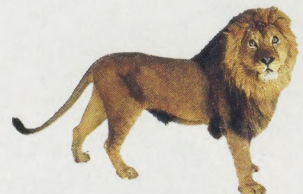
The Clark Vacuum Cleaner Company Has Been Gathering More Dust Since They Got Their Konica Fax.



Whatever your business, there's a Konica Fax that can help you clean up fast. Rush orders, hot leads or new product developments. When overnight just won't do, Konica Fax saves the day.

Pick up more business with a Konica Fax.
Call 1-800-648-7130.

© 1989 Konica Business Machines U.S.A., Inc.



Konica
COPIERS • FAX

The Experts in Accessories

CURTIS

DIAMOND SP-1

Switched; adapts to duplex outlet; 6 Outlets, 15 Amps Total 125 Volts, 1875 Watts • Operating Temperature: -40°C to +85°C • Peak Pulse Power Dissipation @ 25°C: 585,000W for 20 Micro Sec. • Maximum Clamping Voltage @ Test Current 50A (8/20 Micro Sec.) 340V Clamping Occurs Line to Line (Normal Mode) and Line to Ground (Common Mode) • Clamping Response Time: 1 Nanosecond (1 x 10⁻⁹ sec.) • Dielectric Test: 3000 VAC 60 Sec. • Forward Surge Rating @ 25°C: 1440 Amps for 1/120 Sec. • Lifetime Warranty

Retail \$59.95

RUBY SPF-2

Switched; EMI-RFI filtered; plugs into duplex outlet; 6 ft. power cord. Built-in Circuit Breaker • 6 Outlets, 15 Amps Total 125 Volts, 1875 Watts • Operating Temperature: -40°C to +85°C Peak Pulse Power Dissipation @ 25°C: 585,000W for 20 Micro Sec. • Maximum Clamping Voltage @ Test Current 50A (8/20 Micro Sec.) 340V Clamping Occurs Line to Line (Normal Mode) and Line to Ground (Common Mode) • Clamping Response Time: 1 Nanosecond (1 x 10⁻⁹ sec.) • Dielectric Test: 3000 VAC 60 Sec. • Forward Surge Rating @ 25°C: 1440 Amps for 1/120 Sec. • Mode Noise Protection: Normal and Common Mode • Noise Rejection Frequency: 150KHz-30MHz • Attenuation: 50B-58DB. Lifetime Warranty

Retail \$99.95



EMERALD SP-2

Switched; plugs into duplex outlet; 6 ft. power cord. Built-in Circuit Breaker, 6 Outlets, 15 Amps Total 125 Volts, 1875 Watts From Single or All Combined • Operating Temperature: -40°C to +85°C • Peak Pulse Power Dissipation @ 25°C: 585,000W for 20 Micro Sec. • Maximum Clamping Voltage @ Test Current 50A (8/20 Micro Sec.) 340V Clamping Occurs Line to Line (Normal Mode) and Line to Ground (Common Mode) • Clamping Response Time: 1 Nanosecond (1 x 10⁻⁹ sec.) • Dielectric Test: 3000 VAC 60 Sec. • Forward Surge Rating @ 25°C: 1440 Amps for 1/120 Sec. • Lifetime Warranty

Retail \$69.95



SAPPHIRE SPF-1

Switched, EMI-RFI Filtered; adapts to duplex outlet; 3 Outlets, 15 Amps Total 125 Volts, 1875 From Single or All Combined • Operating Temperature: -40°C to +85°C • Peak Pulse Power Dissipation @ 25°C: 585,000W for 20 Micro Sec. • Maximum Clamping Voltage @ Test Current 50A (8/20 Micro Sec.) 340V Clamping Occurs Line to Line (Normal Mode) and Line to Ground (Common Mode) • Clamping Response Time: 1 Nanosecond (1 x 10⁻⁹ sec.) • Dielectric Test: 3000 VAC 60 Sec. • Forward Surge Rating @ 25°C: 1440 Amps for 1/120 Sec. • Mode Noise Protection: Normal and Common Mode • Noise Rejection Frequency: 150KHz-30MHz • Attenuation: 50B-58DB. Lifetime Warranty

Retail \$89.95

All Curtis Surge Protectors meet or exceed IEEE standards 587-1980 Guide for Surge Voltages in AC Power Circuits.

The Ones To Ask For

Curtis Electronic Surge Protectors are built to provide surge protection for any microcomputer for a lifetime. Constructed with precision, using advanced semiconductor technology, the Curtis Jewels prevent damage to microcomputer systems and data from powerline overvoltage



"surges, spikes and glitches." Surge protection from the Curtis Jewels is your guarantee of the best line of defense for your valuable hardware and data, at a price that won't shock you. Get your computer the protection it deserves with Curtis — the experts in accessories.

Curtis products are available nationally from leading Dealers, Distributors, and Retail Chains.

In Canada: Personal Computer Assoc. Inc., P.O. Box 235, Ajax, ONT, L1S 3C3, (416) 427-6612

For the Curtis dealer nearest you call (603) 532-4123 Ext. 94

Manufacturing Company, Inc.

CURTIS

30 Fitzgerald Drive, Jaffrey, NH 03452
A subsidiary of Rolodex Corporation



An
Insulo
International
Specialty
Company

Before you buy a fax, read the fine print.

Everyone shows pictures of their fax machines. But how often do you get a close look at the fax messages they produce?

Since results are what counts, we thought we'd show you ours. So after we typeset this ad, we faxed it along with the photo below from New York to L.A. You're reading the actual output.

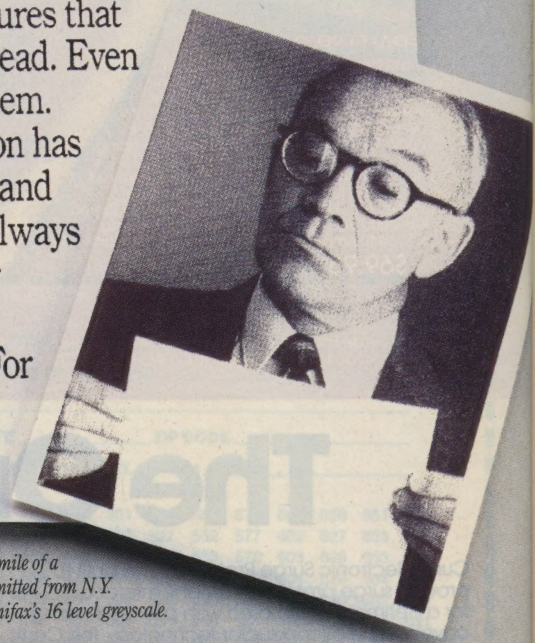
Omnifax's new 100th Anniversary Series lets you choose from normal, fine and superfine transmission modes. So even 6 point type looks as good as this. And our 16 level greyscale reproduces photographs with near picture-perfect quality. So whether you're sending or receiving, you're sure of seeing the cleanest, crispest results.

With an Omnifax, you can communicate with facsimile worldwide—in as little as 9 seconds a page. Plus, you get all the extra features that will make your documents as easy to fax as they are to read. Even oversized documents up to 11.7 inches wide are no problem.

For more than 100 years the Telautograph Corporation has supplied facsimile equipment backed by expert service and spare parts inventory. So today, our Omnifax units are always close to support. And they're easy to obtain through our affordable rental, lease and purchase plans.

You've seen the fine print. Now get the big picture. For more information or a demonstration, call toll free:

1-800-221-8330.



Actual facsimile of text sent from N.Y. to L.A. using Omnifax's superfine mode.

Unretouched facsimile of a photograph transmitted from N.Y. to L.A. using Omnifax's 16 level greyscale.



OMNIFAX®

The Original Facsimile Company



Circle Reader Service Card No. 267

Sold and serviced in the U.S., Canada and Puerto Rico by Telautograph Corp.

The Office

Magazine of Information Systems and Management

February 1989

Volume 109, No. 2

- | | |
|--|----------------------|
| 12 Desktop Publishing: Its Growth as a Technology | |
| 15 Merging Fax Into Corporate Networks | By Paul D. Thomas |
| 36 Electrical Disturbances and Computer Protection | By Mark Rowh |
| 38 Professional Management and Your Phone System | By Henry Baird |
| 40 Full-Text Retrieval: What It Is and What It Does | By Heidi Gabrielson |
| 42 Federal Office Systems Expo Next Month in Washington (Product Preview) | |
| 65 Using Fax Technology to Contact the World | By Pamela Jarvis |
| 67 Electronic Typewriters: Add-Ons Boost Versatility | By Ellen L. Gragg |
| 70 Expanding the Scope of Artificial Intelligence | By Rick Friedman |
| 76 Vivid Colors Enhance In-House Presentations | |
| 78 An Affordable Technology: Two-Color Fax | |
| 80 Advances in Database Management Systems | By Michael Hofferber |

- | | |
|--|---|
| 6 THE OFFICE Product Index | 93 Software Developments |
| 11 Office Odeon | 94 New Products |
| 22 Washington Report | 108 Literature |
| 24 Focus on Software | 109 Helpful Literature from Advertisers |
| 27 Telecommunications Insights | 110 News of the Office |
| 28 New Books | 111 In the News |
| 61 Right or Wrong in Employee Relations | 112 National Conference & Exhibit Calendar |
| 85 Data Processing Products | 114 As We See It |

THE OFFICE © 1989. February 1989. Published monthly by Office Publications, Inc., at 1600 Summer St., Stamford, Conn. 06905. Second Class postage paid at Hartford, Conn. POSTMASTER: Send form 3579 to Box 1231, Stamford, Conn. 06904. (ISSN-0030-0128)

ON THE COVER: Sending and receiving facsimile is a simple keyboard function on document image-processing systems like Eastman Kodak's KIMS System 4000, shown in a cover design by James Eisman Associates. For more on facsimile merging, see page 15.

We have a talent for destruction

...and we're proud of it.

We're SEM, specialists in document destruction equipment. From office shredders with cross cut or strip capabilities, to heavy duty disintegrators, or a custom engineered total destruction system with automatic feeding, waste removal and baling. SEM has it all.

We'll satisfy any requirement from company proprietary to the highest U.S. Government security level.

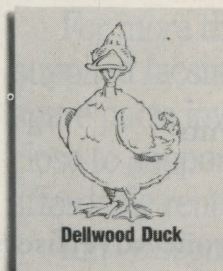
If we don't have the machine you need, you won't find it anywhere. Because no one has a better talent for destruction than SEM. Security Engineered Machinery — the 20-year-old name for total document security.

SEM security engineered machinery

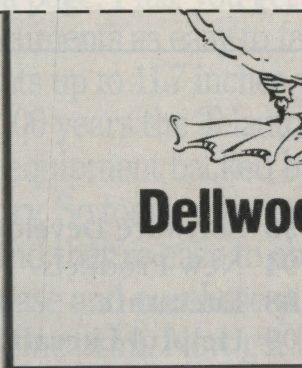
5 Walkup Drive, Westboro, MA 01581 (800) 225-9293 or (508) 366-1488

Offices in Boston, Los Angeles, San Francisco, Dallas, Washington D.C., Tampa, FL.

Circle Reader Service Card No. 398



8 1/2 x 11



23 x 33

Introducing an idea so big it wouldn't fit in this ad.

Varitronics' new PosterPrinter enlarges 8 1/2" x 11" originals into 23" x 33" posters in just 70 seconds. If you want the whole picture, call us or send in this coupon.

For more information, call 1-800-MERLIN-1 (1-800-637-5461).
In Minnesota, 1-612-542-1580. Or mail coupon to: Varitronic Systems, Inc.,
P.O. Box 234, Minneapolis, MN 55440.

NAME/TITLE _____

BUSINESS PHONE _____

COMPANY _____

BUSINESS ADDRESS _____

CITY _____ STATE _____ ZIP _____

VARITRONICS

©Varitronic Systems, Inc. 1988

01070289

Circle Reader Service Card No. 435

The Office®

Magazine of Information Systems and Management

OFFICE PUBLICATIONS, INC.

Founded 1935

1600 Summer Street, Stamford, Conn. 06905

Telephone: 203/327-9670

William Schulhof, Founder/Chairman

WILLIAM R. SCHULHOF, *Publisher & Editorial Director*

EDITORIAL

ALISTAIR P. MASSON, *Managing Editor*

FREDERICK W. NEVIN, *Associate Editor*

SCOTT W. CULLEN, *Assistant Editor*

MARKETING AND RESEARCH SERVICES

ROBERT E. SIEVIEC, *Manager*

PRODUCTION

JOSEPH A. CZARNIK, *Manager*

LAURIE J. STEVENS, *Assistant*

CIRCULATION

VINCENT P. PLAIA, *Manager*

SHIRLEY A. RUSSO, *Assistant Manager*

ADVERTISING

RAYMOND T. TOMPKINS JR., *Sales Manager*

NEW YORK:	212/697-5134
Jack Cutler, 60 East 42nd St., New York, N.Y. 10165	
NORTHERN N.J.:	201/635-5298
James E. McSurely, 12 Williams Rd., Chatham, N.J. 07928	
NEW ENGLAND: Joseph F. Fitzhugh,	603/880-0464
1 Girouard Ave., Nashua, N.H. 03060	
E. PA., DEL., MD., D.C., NO. VA.:	215/647-1611
Pete McAdams, 288 Lancaster Ave., Malvern, Pa. 19355	
NO. & SO. CAR., TENN., GA., ALA.:	404/252-4567
Scott Rickles, Dan Tomkiewicz, 699 Carriage Drive, N.E.,	
Atlanta, Ga. 30328	
FLORIDA: John E. Broderick,	305/786-1939
3350 E. Atlantic Blvd., Suite 308, Pompano Beach, Fla. 33062	
ILLINOIS, WIS., MINN.: Al Gravenhorst, Steve Skinner,	312/545-8621
5901 No. Cicero Ave., Chicago, Ill. 60646	
OHIO, INDIANA, MICHIGAN, W. PA., W. N.Y.:	216/338-8866
Nick LaRich Jr., Steve DiLauro,	
15300 Pearl Rd., Strongsville, Ohio 44136	
TEX., ARK., LA., OKLA.:	214/349-2756
Marc Bryant, 10440 East Northwest Highway,	
Dallas, Tex. 75238	
NORTHERN CALIF., OREGON, WASHINGTON:	415/435-7446
Bruce Gray, 12 Beach Rd., Tiburon, Calif. 94920	
SOUTHERN CALIFORNIA:	213/691-0929
Jack M. Rider, P.O. Box 99, 222 S. Brea	714/990-2666
Bldv., Brea, Calif. 92621	
CANADA:	416/920-8721
John Carson, Barry Thomas Associates,	
1320 Yonge St., Toronto, Ontario M4T 1X2	
EUROPEAN HEADQUARTERS: Office Publications, Inc.,	02/640-6980
Ave. Franklin Roosevelt, 81, 1050 Brussels, Belgium	
JAPAN: Appeal, Inc., Imai Bldg., 3-40-7 Jingu-mae,	03/746-0848
Shibuya-ku, Tokyo 150	
FRANCE: Jean-Yves Pastor, 191 rue d'Alesia, 75014, Paris	1/4543-7441
UNITED KINGDOM: Rob Newey, BMI Media Sales,	01/222-0181
Artillery House, Artillery Row, London SW1P 1RT	

Subscriptions: one year \$40; two years \$75 to U.S. and Possessions. Other countries: one year \$80 (by airmail). Single copy \$5 in the U.S., \$7 a copy to other countries. Back issues \$6 each to U.S., \$8 to other countries.

When changing your mailing address, please give six weeks' notice and follow instructions on postage-paid card at back of every issue. Always include your current mailing address label. POSTMASTER: Please send Form 3579 to P.O. Box 120031, Stamford, Conn. 06912-0031.

THE OFFICE® is published monthly by Office Publications, Inc. Cables: Wilhof, Stamford. Printed in U.S.A. Entire contents copyright © 1989 by Office Publications, Inc. All rights reserved. The opinions expressed by authors in this issue are their own, and not necessarily those of the publication. THE OFFICE is a registered trademark with the U.S. Patent & Trademark Office.

Also publishers of LA OFICINA (Spanish language annual); OFFICE EQUIPMENT EXPORTER (annual); THE OFFICE MAILER. Member, Business Publications Audit of Circulation, Inc.

The Office, February 1989

A WEALTH OF KNOWLEDGE, FREE FOR THE ASKING.

The TempForce® 1988 Annual Salary and Employment Survey. Thirty-two pages full of information about salaries, company benefits and costs, recruitment and staffing trends, and lots more. Data collected on over 14,000 personnel working in 17 different job categories.

It's hard to put a price on this kind of information, so we didn't. It's yours *free*. Just circle the appropriate number on this publication's reader service card, or call (516) 683-6000 today for your free copy.

Tempforce®

THE FULL SERVICE SERVICE®

TempForce, Inc., a subsidiary of Career Employment Services, Inc., Suite 700, 1600 Stewart Ave., Westbury, NY 11590.
Offices coast-to-coast. Check the white pages for the local offices nearest you.

The Office PRODUCT INDEX

For more information on the products or services advertised in this issue, circle Reader Service Card number from left-hand column (not page number) on postage-paid card from front or back of this issue.

Reader Service Card No.	Page	Reader Service Card No.	Page	Reader Service Card No.	Page
ACOUSTICAL ENCLOSURES		EXPENSE BOOKS		POWER CONTROL EQUIPMENT	
278 MKM	63	297 Beach Publishing Co.	61	331 Cable Electric	32
ANTISTATIC AIDS		FACSIMILE DIRECTORY		433 Curtis Mfg.	1
481 ACL	11	298 Entrepreneur's Library	61	399 Panamax	37
404 Evans Specialty	53	FACSIMILE PAPER		484 Perma Power	30
333 Wiemer's	30	449 Paper Mfg. Co.	10	275 S.L. Waber	86
BUSINESS CARD FILES		FACSIMILE SYSTEMS		READER PRINTERS	
468 Rolodex	79	457 AT&T	29	269 Canon	73
487 Moore	33	453 Canon	20-21	RUBBER STAMPS	
BUSINESS FORMS		454 Konica	Cover 2	463 Shachihata	57
496 General Business Forms	98	472 Konica	99	SCALEABLE TYPE	
487 Moore	33	464 NEC	60	455 Bitstream	25
CARTON CARRIER		452 Panafax	19	SHREDDERS	
479 Rich Lee	113	450 Pitney Bowes	14	437 Allegheny	56
COLOR PRESS		462 Ricoh	52	409 Ameri-Shred	62
406 Townsend Industries	54	267 Telautograph	2	296 Cummins-Allison	112
COMPUTER-FAX DEVICE		476 Trans-Lux	103	459 Panasonic	43
483 Biscom	30	FILING SUPPLIES		398 SEM	4
COMPUTER LEASING		458 Tab	31	SIGNING SYSTEM	
294 Genstar Rental Electronics	39	FILING SYSTEMS		408 Martin Yale	56
COMPUTER SUPPLIES		470 Kardex	83	SOFTWARE	
271 Wilson Jones	91	FONT CARTRIDGES		482 ACI	104
COPYING MACHINES		285 Intercon Associates	89	332 Good Ideas	112
461 Eastman Kodak	51	403 Pacific Data Products	50	407 M/H Group	55
477 Equipment Brokers		FURNITURE		473 Wright Line	101
Unlimited	106	286 Brettford	90	STORAGE SYSTEMS	
330 Gestetner	107	460 Dennison Monarch	44	410 Winsted	62
472 Konica	99	IDENTIFICATION AIDS		TAPE FLAGS	
276 Savin	87	436 MetalCraft	11	Barbara Thomas	
CRT FILTER		LASER PRINTERS		Enterprises	84
488 Polaroid	13	480 Mannesmann Tally	23	485 3M	41
DATA ENTRY SYSTEM		MAILROOM EQUIPMENT		TELEPHONE SYSTEMS	
293 Technology Solutions	106	432 Bell & Howell	Cover 4	AT&T	81
DELIVERY SERVICES		402 Charnstrom	48	448 Dytel	7
434 Federal Express	8-9	478 Cheshire	82	456 NEC	26
DICTATION EQUIPMENT		411 Postmatic	63	329 Southwestern Bell	58-59
400 Lanier Voice Products	47	MAILROOM FURNITURE		TEMPORARY HELP SERVICES	
287 Philips Business Systems	105	466 Hamilton Sorter	71	447 TempForce	5
DISK READERS		PAPER		268 Uniforce	49
405 CompuScan	54	486 Georgia Pacific	97	TRADE SHOWS	
ELECTRONIC TYPEWRITERS		467 Hammermill Papers	77	474 AISP	102
270 Sharp	75	PC-FAX BOARDS		273 Interface	110-111
451 Swintec	16-17	272 Data Copy	92	VISUAL PRESENTATION SYSTEMS & SUPPLIES	
		465 Quadram	64	401 Magna Visual	48
		POSTER PRINTER		431 Quartet	Cover 3
		435 Varitronics	4		

I wish, I wish...

Call Handling Wish List

I wish for...

- ...All calls answered immediately.
- ...Happy pleasant greetings all day.
- ...No customers put on hold.
- ...Automatic supervision whether called parties are busy or not there.
- ...Automatic routing to all frequently called functional areas such as Sales and Customer Service.
- ...Total information on incoming calls... anytime I want it.
- ...Effective answering before or after normal working hours.
- ...Maximum efficiency from my PBX and other communications systems such as ACD and Voice Mail.
- ...Special messages for *Special* customers.
- ...Small price/fast payback.



With the DYTEL® Automated Attendant Exchange™ Your Wishes Can Come True

The DYTEL Automated Attendant Exchange automates incoming calls, integrates other communication functions and dramatically improves service—immediately. The payback is so fast that in less than one year, often six months, you have paid for your investment.

Don't just *wish* for automated call handling, join the more than 1,000 other DYTEL users by calling or writing today—the call processing experts who invented the Automated Attendant™...



DYTEL Corporation

50 E. Commerce Drive • Schaumburg, IL 60173

1-800-223-2727 Extension 5400 • 1-312-519-9850 Extension 5400 (in Illinois)

How to get ahead in a mail dominated society.

You handle thousands of letters and packages each day.

Perhaps millions over the course of a year.

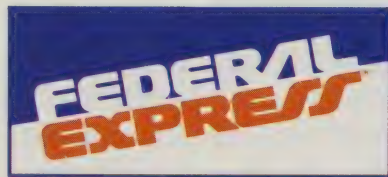
It's a tough job, but when everything goes smoothly, the people in your company know it.

At Federal Express®, we offer the services you need to help keep the mail flowing efficiently and reliably.

Like delivery to more U.S. destinations by 10:30 a.m. than any other air express company. (If we're even 60 seconds late, you can request a refund.*)

And that kind of reliability means fewer problems, and fewer complaints.

Plus you'll get something that will make your job a lot easier—proof of delivery. You won't have to hope it got there, you'll know it did.



It's not just a package.
It's your business.™

All this is possible because we have the most technologically advanced delivery system in the business. Including our COSMOS® package tracking system, which can give you the status of your package within 30 minutes of your call. (If we don't make it within 30 minutes, simply ask for your money back.*)

The COSMOS system means you always know where your packages are. It puts you in control.

And we make shipping even easier with our customer automation systems. Like Powership™, a shipping management system which, among other things, virtually eliminates paperwork.

So next time call Federal Express. Because when your letters and packages go places, you will too.

*Areas served, delivery times, liability and conditions of money-back guarantee subject to limitations stated in the Federal Express® U.S. Service Guide. © 1988 Federal Express Corporation

Circle Reader Service Card No. 434

THERE'S ONE THING ABOUT FACSIMILE THAT JUST CAN'T BE COPIED.

ACCUFAX®

We're the one-of-a-kind industry leader in the fax supplies market. And there are plenty of reasons for that success.

The AccuFax Warranty is the first and finest in the industry.

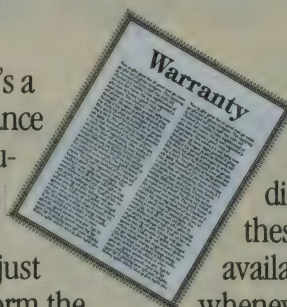
Protecting your expensive equipment, while guaranteeing perfect product performance — fax after flawless fax. We even promise performance equal or superior to your fax manufacturer's product, or your money back. Of course, it won't be a lot of money, because AccuFax products are competitively priced with original

equipment brands. That's a combination of performance and price that makes AccuFax the leading value in the industry, too.

But, AccuFax doesn't just

outperform the competition. We outservice them, as well. Our full line of thermal papers and imaging supplies even includes hard-to-find high-sensitivity papers for the

gray scale and shading capabilities of modern fax machines. In fact, there's an AccuFax product for virtually every fax machine, whatever its make or model. And



our coast-to-coast network of over 2000 dealers and distributors means all these great products are available wherever you are, whenever you need them.

The performance of your fax machine can only be as good as the paper you use in it. And there is no better paper than AccuFax. Ask for it by name wherever you purchase facsimile supplies. Or call (800) 327-4359 for the AccuFax dealer nearest you. In Ohio (800) 423-8512. FAX (513) 772-5098.

AccuFax®
Imaging Supplies



Paper
Manufacturers
Company

QUALITY SINCE 1905

24 Triangle Park Drive, Cincinnati, OH 45246

OFFICE ODEON

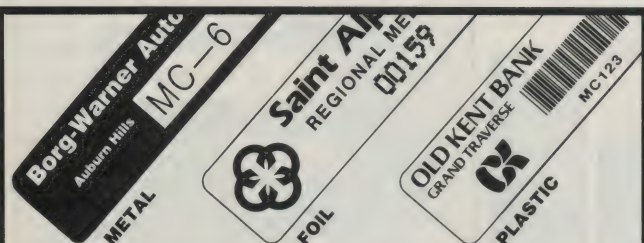


Write a gag line for the above cartoon on a post card and mail it to Odeon Editor, THE OFFICE Magazine, Box 1231, Stamford, Conn. 06904. If yours is chosen, we'll send you \$25. Print name and address clearly.



"Can't we just say he's taking a personal day and leave it at that?"

Pat McDonnell of Norristown, Pa. received \$25 for the above gag line.



Compare Metalcraft To Any Other Property Control Tag

Durable Metalcraft nameplates and labels set the quality standard for permanent identification of property and fixed assets. Indented serial numbers or 100% readable bar codes in your choice of substrates, adhesives and sizes. Multi-colored design or "plain vanilla", you can't buy a better property control tag.

Request your FREE Easy-to-Use Booklet

Property Management Guide tells how to set up a fool-proof system for property control, maintenance management, warranty and inventory control, and more.

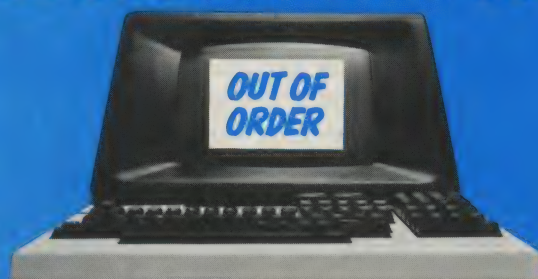


For Samples and Information FAST--Call
1-800-437-5283



P.O. Box 1468
Mason City, Iowa 50401
515-423-9460

STOP STATIC BEFORE IT STOPS YOU.



If static is present in your EDP environment, you can eliminate it easily, quickly and inexpensively with Staticide. One application of Staticide liquid spray to carpets, chairs and work surfaces eliminates static for up to six months.

Staticide Wipes are handy towelettes that clean CRT screens and keyboards—eliminating static problems and dust attraction too. See your office supply dealer about our static control products before static stops you.

To find a dealer near you, call **1-800-STATIC-O.**



Staticide®
The Perfect Solution
To Costly Static Problems.

ACL Inc. 1960 E. Devon Ave., Elk Grove Village, IL 60007
(312) 981-9212, 1-800-STATIC-O, TELEX 4330251

Desktop Publishing: Its Growth as a Technology

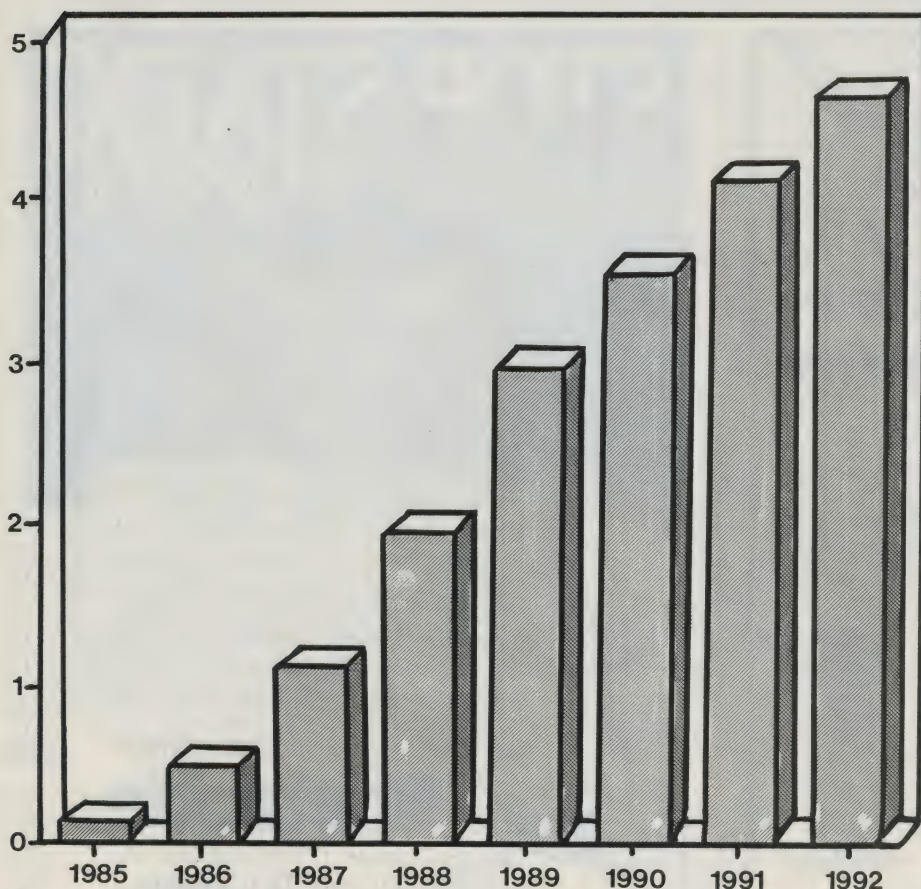
Industry analysts say we haven't seen anything yet. Wait until DTP features become totally integrated.

Although desktop publishing is a relatively new technology, it already has made a dramatic impact, allowing users to produce professional, high-quality documents from a personal computer. The net result has produced savings in time and money which would otherwise be spent farming out projects to a commercial printer.

With all desktop publishing has accomplished, it is sometimes difficult to remember that it is a relatively new, thriving market with continued expansion forecast for the next several years, according to the Market Intelligence Research Co., Mountain View, Calif.

"Within two to three years," says the research firm, "DTP features will become integrated in most desktop computers and standard application software. In addition, it is expected that DTP software characteristics will be included in word processing and other office-related software."

As for revenue, the report concludes that hardware will maintain a "dominant lead over software during most of the forecast years, 1985-1992. However, toward the end of the forecast period, software revenue will increase more substantially, as more DTP word processing software becomes available."



An eight-year projection for the desktop publishing market, estimated in millions of dollars, is courtesy of Market Intelligence Research Co., Mountain View, Calif.

To date, figures show that overall desktop publishing revenues have climbed from \$128.7 million in 1985 to \$1.926.4 billion last year. This year, overall revenue is projected at \$2.951.9 billion, and is expected to reach \$4.606.8 billion by 1992, according to MIR.

While hardware dominates the market at present time, indications are that software developers are beginning to respond by introducing low-cost software. The developers are now offering applications on 32-bit architecture, capable of running on 80386 hardware for interactive applications such as word processing, spelling checkers, object-oriented graphics and text/graphic integration.

Where LANS Come In

The availability of lower price local area networks will also address user demands for compatibility between existing hardware and software, and between Apple-based desktop equipment and IBM and IBM-compatible computers and peripherals. Corporations and small businesses will remain the two largest end-user segments during the forecast period, and governmental/educational institutions will emerge as prominent end-user segments.

Since many corporate documents are well suited for DTP applications, entrepreneurial opportunities exist in this niche. To address this market segment, file servers offering easy sharing of files and transferring of formatted data will be a crucial strategy, says the report.

Despite the technology's benefits, management must be more aware of this industry's technology and of specific advantages it offers each user. Fertile markets for desktop publishing include government and other offices which have a large volume of forms generation or on-demand publishing like manuals, books, internal documentation, business communications, advertising documents, sales and marketing materials and presentation graphics.

Monitoring User Needs

Meanwhile, CAP International, another research firm, warns that manufacturers must keep on top of desktop technology and closely monitor user needs because better educated consumers are lengthening the purchase cycle by demanding systems that meet their specific needs. Says Steve Kreindler, a CAP analyst in

(Continued on page 32)

Before you buy any computer screen filter, read the fine print.

Polaroid® CP-50 Circular Polarizing Filter

Make sure it says "Polaroid Circular Polarizing Filter." Why?

Because Polaroid invented circular polarizers over 50 years ago.

Only Polaroid makes the original circular polarizing filter to reduce glare and improve contrast on any computer monitor — color or monochrome.

The glaring problem. If you work at a computer display, you fight a daily battle against computer glare.

Bright light from windows and overhead lamps reflects off your CRT monitor, making it hard to identify letters and numbers on the screen.

You squint, strain and change position, constantly refocusing your eyes between the reflected image and the data on the CRT. By the end of the day, your eyes have had it. Productivity drops and you begin to make mistakes. Office glare has won the battle.

What's the best solution to this glaring problem? Polaroid CP Filters. Our circular polarizing filters improve contrast and reduce glare on virtually any computer monitor, CAD/CAM display, graphic screen or TV monitor — color or monochrome.

Polaroid CP Filters suppress up to 99% of reflected light and are more effective than any other kind of filter for improving contrast. So you see clearly and with less effort. Doesn't it make

sense you'll be even more productive and also less tired at the end of the day?

The clear choice. Choose from Polaroid's full line of Circular Polarizing Filters. The **CP-50** is a low-cost, lightweight circular polarizing filter under \$50. The **CP-50SC** eliminates static to reduce the chance of wiping out important data. And the **CP-70** is a durable, optical-quality glass filter. Plus, the new CP-Custom can be tailor-made to fit a wide variety of computer screens.

For the name of your local authorized Polaroid CP Dealer, and information on our Free Sunglasses Offer, read the fine print below.

How Polaroid CP Filters eliminate office glare. As room light reflects off your computer screen, it's absorbed by the Polaroid circular polarizing filter. Only the light produced by your computer screen remains. The result is a high quality computer display that's easy on your eyes.

Buy one. Get a pair free.

This certificate entitles you to a free pair of Polaroid Sunglasses when you buy a Polaroid CP Filter before December 31, 1989. Simply fill this out and mail it, along with a copy of your dated sales receipt and model number cut from the CP Filter box to: Polaroid Corp., Sunglasses Promotion, 1 Upland Road N2-1K, Norwood, Massachusetts 02062. Please include \$1 for postage and handling for each pair ordered. Void where taxed or prohibited.

Name _____
Company _____
Address _____
City _____ State _____
Zip _____ Telephone _____

Polaroid

TO 289

"Polaroid," "CP-50," and "CP-70" ®

**If you
ordered
clocks
and you
got
crocs...**



...you need Pitney Bowes fax.

You can avoid communication errors while increasing your business' competitive edge. How? Sink your teeth into the future...get a Pitney Bowes facsimile machine!

Our fax sends, or receives, anything on paper...from anywhere...to anywhere...over ordinary telephone lines. Exchange of information is fast, accurate, dependable, and affordable.


In seconds you see the documents, graphics, handwritten notes, blueprints or typewritten pages necessary to make the decisions that are right for your business. And the scales are tipped in your favor...at last!

THINK OF US FIRST IN FAX!

- Superior products mean clear, clean reproductions, sent and received in seconds.
- Innovative financial alternatives, including rental and leasing.
- A direct sales force trained to analyze needs and recommend solutions.
- 75% of all calls to our National Diagnostic Center are resolved over the telephone.
- Nationwide service from 4,000 Pitney Bowes reps in 700 locations.



Call 1-800-MR. BOWES, Ext. 685
Or write Pitney Bowes Facsimile, Stamford, CT 06926-0700

 **Pitney Bowes**

Merging Fax Into Corporate Networks

"Fax will become an integral element of messaging networks, one of several receive and deliver options with their own benefits."

By Paul D. Thomas

Minor league baseball uses it to collect and furnish game statistics. Lawyers negotiate by it. Junk-mailers have discovered it. Restaurants accept take-out orders and pharmacies handle prescriptions with it. Even car phone enthusiasts are installing it.

The facsimile machine has found its way into nearly every nook and cranny of the business world. The numbers for the U.S. market have been printed so often now, they no longer startle. Vendors sold over 350,000 Group III machines in 1987; shipments topped 400,000 last year and will peak at close to 450,000 this year. The domestic installed base has passed the one million mark and is growing at an annual clip of 32.5%, we project. Analysts agree: fax has emerged as the fastest-growing business communication in the U.S.

Application Innovations

Industry attention is focused on small business, home business and consumer applications, where the most heated growth in fax unit sales is taking place. Although the major vendors are rushing to retail distribution and discount dealing in pursuit of a mass fax market, the real innovation in applications is occurring back in the corporate office, where fax first got its start.

Fax technology—in the form of stand-alone machines, PC-fax boards and fax servers—is merging into the mainstream of corporate information networks. Vendors are allowing users to integrate fax as a reception or delivery option on computer-based electronic mail and telex networks, mini-based office systems, LANs and optical storage-based imaging systems. And at least one product now allows MIS managers to connect up to 1000 fax units via a central switch.

There is no doubt that the spectacular increase in fax use has stolen message volume from more traditional electronic mail services. "For occasional reports and messages, fax can serve as well as computer-based systems," concedes Michael Cavanagh of the Washington, D.C.-based Electronic Mail Assn. "Fax is a great consumer item because it is not really intimidating."

The major public electronic mail serv-

ice bureaus, however, are trying to position fax as complementary rather than competitive with their own services. AT&T Mail, G.E. Information Services, MCI Mail and Western Union have announced their intention to provide fax as a delivery option for their electronic mail and telex subscribers. Users will thus be able to combine the convenience of fax with the networking features of E-mail

(Continued on page 18)



Wang Integrated Image Systems are linked with instant communications capabilities of some 900,000 fax units now in use through the VS facsimile server.



IN

DON'T WORRY.



BE HAPPY.

NOTHING feels as good as a Swintec.

No matter how high the work piles up, you will always be happy with a Swintec at your fingertips. That's because all Swintec keyboards, with specially designed, contoured keys, offer a unique feeling unlike any other machine on the market.

The solid feel of a responsive, sculptured keyboard makes every move smooth and fluid as your fingertips glide across the keys. We call this unique feel of the keyboard "MAGIC TOUCH", because at Swintec, we put as much emphasis on comfort as we do on the many features you find in our products.

When you work all day on a Swintec machine, there's no extra effort involved. Just the easy, comforting support of the industry's best designed keyboards. From typing systems, to typewriters, to calculators—NOTHING feels as good as a Swintec. NOTHING.

So, when your fingers are in for a long day's work—
Don't Worry. Be Happy.

The Keys. The Touch. The Response.

NOTHING FEELS AS GOOD AS A SWINTEC

Call 1-800-225-0867 to arrange for a free demonstration today.

swintec
CORPORATION®

P.O. Box 356, Moonachie, NJ 07074

©1989 Swintec Corporation

Merging Fax

(Continued from page 15)

services. The public service companies will receive E-mail or telex messages at micro or minicomputers and route them to fax machines via internal PC-fax boards or mini-fax servers.

"Fax will become an integral element of messaging networks. It will be just one of several receive and deliver options, each of which has its own set of benefits," comments Doug Brackbill, director of marketing for MCI Mail. And private E-mail systems, by virtue of the growing number of private-public gateways, will be linked to this growing menu as well.

A Blurring of Lines

The merging of fax into E-mail is part of a broader trend toward the blurring of lines between several formerly distinct messaging environments. Only a few years ago, computer-based E-mail, telex, voice mail, electronic document interchange, local area networking and facsimile were considered distinct and thus incompatible. But, according to Mr. Cavanagh and other industry observers, X.400 standards and pre-X.400 interconnections are already knocking the old fences down. PCs, telex machines,

phones and fax units are becoming nothing more than different types of messaging terminals. Thanks to the availability of terminal and network-based format conversions, they are beginning to communicate with each other.

Fax also boasts international E-mail applications. RCA Global Communications, whose acquisition by MCI was finalized last May, offers FaxForward, a fully-featured service for two-way transmissions between the U.S. and Japan. Users insert their hard copy into any Group III fax machine, dial the FaxForward number, and enter their code and the list of fax numbers to which they want a document broadcast. RCA distributes the messages via a high-speed multiplex link between the nations.

Although the economies of this type of service are most apparent for international messaging, FaxForward may have intra-national applications as well.

Compound document management systems, also called document image processing systems, are also sprouting fax connections. At least three major CDM system vendors—Eastman Kodak Co., Filenet Corp. and Wang Laboratories—are trumpeting fax servers as hot enhancements to their products. The new capabilities will allow CDM system users to specify fax as an option for receiving or delivering files from optical storage.

A new study of ours shows that the

CDM systems market will grow from \$93.4 million in sales in 1987 to \$2.3 billion in 1992. This is a growth curve that fax joined at its beginning and will ride to the top.

Wang has set \$13,900 as the price for its VS fax server hardware and software package for the Wang Integrated Image Systems. Filenet has announced \$30,000 as the cost of its server and software package. Kodak has priced its KIMS system 4000 fax server at \$2200 per image station.

Some users, though, are not waiting for the turnkey products to become available. Instead, they are developing their own fax-imaging networks. Consolidated Freightways of Palo Alto, Calif., for one, has integrated fax into its optical-storage based imaging system for handling bills of lading and other documentation.

Fax Boards Show Growth

The PC-fax board market is shaping up to be a fiercely competitive, fast-growing segment of the overall industry. Unit sales reached 65,000 in 1987, almost triple the number most analysts had projected. Sales were expected to hit a quarter-million units last year and a full million in 1990.

The leading vendors of PC-fax boards are not stand-alone fax machine firms but, rather, desktop scanner manufacturers. Industry leaders include Datacopy, Gammalink, Dest and Panasonic—all major scanner vendors. The reason is that PC-fax boards are viewed as a complement to their products. Users can scan documents into their PCs and then transmit them to remote fax machines or other fax-equipped PCs. The technology has worked its way into desktop publishing and PC communications applications.

Finding Industry Niche

It should be no surprise, then, that virtual fax for minicomputers is also finding its place in the industry. At least one company has introduced a product it claims will do for the minicomputer what PC-fax boards will do for the micro. Biscorn, Inc., of Chelmsford, Mass., claims to have sold 140 units of its \$3695 Faxcom 1000+ multiuser fax interface, which interfaces with LANs, mini and supermini computers over any asynchronous RS232C serial port, and transmits to any Group III fax machine.

The Wholesale Club of Indianapolis,
(Continued on page 35)



Konica's FAX 500 has 9600 bps transmission speed, one megabyte memory and built-in handset. It is compatible with CCITT Groups I, II and III, company reports.

PANAFAX GETS UNANIMOUS APPROVAL ACROSS THE BOARD.



Whatever size company you've built or run, Panafax offers the right size facsimile machines to serve it. Whether you need a network hub facsimile machine for your headquarters or compact units for your one-man outposts, Panafax can provide them across the board. They'll all work together to keep your organization communicating together, instantly and economically.

All Panafax machines have sophisticated features that make them perform with outstanding clarity. And because they're all outstandingly operator-friendly, anyone can operate them.

They also all offer Panafax's 800-CALL FAX Service. In the remote chance that something ever goes wrong, it can be diagnosed and usually fixed, remotely, with just a phone call.

All of which should show that Panafax is part of The Panasonic Boom: the next generation in business. And that choosing Panafax will meet with the approval of the Board of even your business.

Panafax®

O/A

Panafax Corporation, 10 Melville Park Rd. Melville, N.Y. 11747

Call 1 800 645-7486 (In NY State 516 420-0055,
in Canada 800 263-5004)

Tell me more about Panafax facsimile technology.

Name/Title _____

Company _____

Number of Employees ☐ 1-99 ☐ 100 Plus

Address _____

City _____ State _____

Zip _____ Telephone _____

Panasonic
Office Automation 



CANON'S REVOLUTIONARY ULTRA H

A NEW GENERATION OF PERFORMANCE

With UHQ, Canon introduced an entirely new generation of facsimile technology. A digital imaging system so advanced, it can transmit even the most detailed documents, graphics or photographs in an incredible 64 shades of gray.

Now, we've made it even easier to improve your business image, with a full line of UHQ facsimiles designed to meet a wide range of business needs.

Like the Canon FAX-270, designed for businesses who want a higher level of performance and quality, without higher costs.

Or the FAX-450, with an incredibly efficient 9-second* transmission speed. And the plain paper per-

formance of the FAX-630, with the highest resolution available anywhere on plain paper.

Or for businesses who need high performance that's also highly productive, there's the FAX-705's powerful built-in memory and InstaScan document scanning.

And all Canon UHQ Facsimiles feature an exclusive Error Correction

Mode to ensure the reliability and quality of the documents you send. Plus automatic features that make Canon UHQ faxes as easy to use as they are advanced.

Canon UHQ Facsimile Technology designed to make a clear difference in all your business communications.

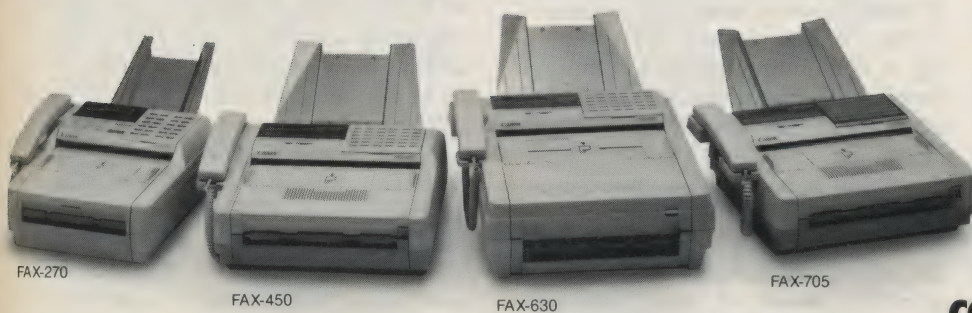
UHQTM
IMAGE PROCESSING SYSTEM

*Based on CCITT #1 Test Chart, CHT mode.



Image quality as reproduced by a Canon UHQ unit.

GH QUALITY FACSIMILE TECHNOLOGY. THAT'S CLEARLY AHEAD OF ITS TIME.



Canon
FAX
COMMUNICATING QUALITY

For more information, call toll free 1-800-OK CANON. Or write Canon U.S.A., Inc., P.O. Box 3900, Peoria, IL 61614

Circle Reader Service Card No. 453



Enjoy easy extended payments with the Canon Credit Card.
Ask for details at participating Canon dealers and retailers.
Available only in U.S. © 1989 Canon U.S.A., Inc.

WASHINGTON REPORT

New Tax Code Section, or Why Heads Go Gray

A new section of the tax code that went into effect this year provides a new twist on the old saying that no good deed goes unpunished. In this case, Congress had a good intention—making life and health insurance available to more Americans. But the “punishment” will be felt by countless employers that, the law says, must provide such benefits on a more equitable basis.

The new rules, known as Section 89 of the Tax Code, are extremely complex and burdensome to implement. Adding to employers’ headaches, the Internal Revenue Service did not issue explanatory guidance by January 1, the date the new rules became effective. With or without such guidance, many companies will have to overhaul their benefit plans.

Congress Meant Well

That, essentially, was Congress’ objective. With some 37 million Americans lacking any health insurance, Congress hoped that by discouraging discriminatory benefit plans in the workplace—the source of insurance for most—at least half of the uninsured would be covered. So the lawmakers included a provision in the 1986 Tax Reform Act that is designed to make it more difficult—and costly—for companies to provide generous benefit packages for their higher-paid employees and little or no benefits for the others.

As a result, virtually every company will have to subject its group life and medical plan to a convoluted testing process to determine whether the benefits are available to at least 80% of its work force. If not, the benefits provided to higher-paid employees will be taxed as though they had received the benefits in cash, and the companies will be hit with tax penalties.

The data collection process will be costly. A firm with 200 employees, say industry experts, can expect to pay at

least \$2000 in accounting charges just to determine whether its plan complies with the law. And the testing procedure has to be repeated every year. A number of software programs are already on the market to help businesses deal with the intricacies of Section 89. The law “puts everyone at risk,” according to Confederation Life Insurance Co. in Atlanta, one of several insurance companies selling testing and compliance services.

The new law is the most sweeping since the 1974 Employment Retirement Income Security Act (ERISA), and



applies to medical insurance, group life insurance and similar benefits provided by virtually every employer.

Not only does Section 89 require testing to determine whether a company’s benefits are discriminatory; every plan must meet five qualification requirements. The plan must be in writing by the end of the 1989 plan year; the employees’ rights must be legally enforceable; the plan must be established with the intention of being maintained for an indefinite period of time; employees must be given reasonable notification of benefits available in the plan; and it must

be maintained for the exclusive benefit of employees.

If a company fails to meet the five requirements, it will have to include the value of the benefits paid under the plan on each employee’s W-2. Failure to do this in a timely fashion will subject the company to a 28% excise tax on the amounts that should have been reported.

Under Section 89, eligibility for participation in a plan cannot be discriminatory in favor of highly paid employees. In addition, there are two non-discrimination tests. The simplest to use is the 80% test, which provides that if a plan benefits at least 80% of an employer’s non-highly-compensated employees, it is non-discriminatory.

Test Gets Tougher

If a plan fails the 80% test, it must pass a more complicated three-part eligibility and participation test. Under this, at least 50% of the employees eligible to participate must be non-highly-compensated. Alternatively, the percentage of highly compensated employees eligible to participate cannot be greater than the percentage of non-highly-compensated employees who are eligible. Two, at least 90% of the non-highly-compensated are eligible for a benefit that is at least 50% as valuable as the largest benefit available to any highly compensated employee. And, three, the average benefit received by non-highly-compensated employees must be at least 75% as valuable as the average benefit received by the highly compensated.

Highly compensated employees fall into one of the following categories: those who either own 5% or more of the company, have compensation of more than \$75,000 (subject to cost-of-living adjustments), receive more than \$50,000 (also subject to adjustment) and are in the top 20% of paid employees, or are officers of the company. **TO**

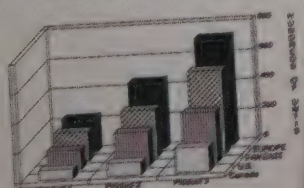
October 27, 1988

Mr. Charles Bostwick
Bostwick Parker Company
13644 148th Avenue
Detroit, Michigan 49684

Dear Mr. Bostwick:

The results of the computer simulation are in, and you'll find them quite fascinating. Here is an interesting surprise: the greatest sales potential exists with number three. What's more, the largest sales will be Europe and the Far East, not the United States.

Bostwick Parker Co.
New Product Sales Projections



These sales projections take into account the requested in the model. Specifically, the greatest sales potential was reduced to reflect the

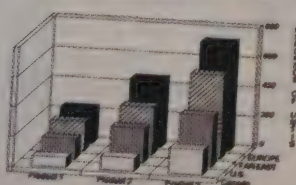
October 27, 1988

Mr. Charles Bostwick
Bostwick Parker Company
13644 148th Avenue
Detroit, Michigan 49684

Dear Mr. Bostwick:

The results of the computer simulation are in, and I think you'll find them quite fascinating. Here is an interesting surprise: the greatest sales potential exists with product number three. What's more, the largest sales will result from Europe and the Far East, not the United States.

Bostwick Parker Co.
New Product Sales Projections



These sales projections take into account the requested in the model. Specifically, the greatest sales potential was reduced to reflect the

CAN YOU SPOT THE \$700 DIFFERENCE?

One of the nearly identical samples you see above was printed with the HP Laserjet Series II. The other is from the Mannesmann Tally® MT905. Both are reprinted here exactly as they came out of the printers.

But what might surprise you is the rather dramatic difference in the manufacturers' suggested retail prices.

The Mannesmann Tally laser is \$700 less. Yet it offers the same high quality output, lowers operating costs 25 percent, and prints at six pages per minute.

The MT905 comes with the same resident type fonts as HP, accepts standard HP font cartridges, and lets you choose optional memory upgrades from one to four megabytes.



MT905 Specifications

- Technology: scanning laser.
- Print Speed: 6-pages per minute.
- Resolution: 300 x 300 dpi.
- Emulations: HP Series-II. [optional emulations: Epson® IBM® Proprinter, & Diablo 630.]
- Standard I/Os: Serial & parallel.
- Memory: 512K. [upgrades: 1, 2, & 4 megabytes.]
- Typefaces: Courier medium & bold, line printer, accepts standard HP font cartridges or any downloadable font in HP-format, 6-resident fonts + 2 font cartridge slots.
- Paper Handling: 250-sheet input & output bins. Manual feed handles single sheets, envelopes, transparencies, and labels.
- Workload: 4,000 pages-per-month.
- Suggested Retail: \$1,995.

For more convenient paper handling, the universal paper cassette holds letter, legal, and international sizes, plus up to 15 standard envelopes. You can choose face-down output to keep long documents in the right order. And the manual feed lets you print labels or transparencies.

So any way you figure, the answer still comes up the same. The Mannesmann Tally laser looks perfect. And so does the price.

For the name of your nearest dealer, call the toll-free number listed below.

**MANNESMANN
TALLY**
1-800-843-1347

Ext. 196

Epson and IBM are registered trademarks.

FOCUS ON SOFTWARE

By Claude F. Whitmyer

Project and People Management With Tracking Software

Software to manage projects has been available for several years, but most of it was designed to handle multiple major projects using the PERT or CPM methods of project management. These were usually manufacturing, software development or something equally difficult to keep track of.

For the average manager, there were simple desktop organizers that included a personal database, appointment scheduler and notepad. These were typified by Borland's Sidekick Plus, Lotus' Metro, and Brown Bag's Homebase. While these programs had helpful features like telephone dialing and pop-up calculators, they were not really designed to keep track of the kind of projects unique to nontechnical departments. Major project-tracking programs like Harvard Project Manager or Timeline were complicated, and did not offer appointment reminders, to-do lists or note-taking functions.

Two Basic Forms

Recently, however, packages that offered both time management and project-tracking began to appear. These programs are characterized by the simplicity of operation they offer, and come in two basic forms: those focused on project management or those focused on people management.

The project managers, like InstaPlan, Who-What-When, Primetime or Action Tracker, are centered around the appointment scheduler, and usually have features like to-do lists, cross referencing of schedules and contact lists. They are designed to be used by nontechnical managers who must delegate work to others and handle many small projects. Of these, Primetime and Who-What-When are the easiest to use; Action Tracker and InstaPlan the most comprehensive.

Primetime uses appointments, tasks to

be completed, and delegated assignments as the items to manage. Its strength is in the many ways it allows you to view this information. It can be run RAM-resident and includes a strong calendaring function and alarm reminder. Who-What-When also has strong calendar and scheduling functions and, like Primetime, alerts the user to schedule conflicts when several people are involved, but does not run in a RAM-resident mode.

Action Tracker works more like the standard project management software,



but is focused on people rather than jobs. The basic resource is a person with particular skills. Action Tracker uses to-do lists and appointments to set up the timeline and then manages individual availability to see that a project is done on time. Unlike the more powerful project trackers, Action Tracker is quite easy to use.

InstaPlan offers an outline-based approach to planning. First, you define broad objectives, then flesh-out the details in subcategories, like an outline. Next, you can switch to an integrated spreadsheet to assign resources to the

activities listed in the outline. You can produce many different kinds of graphs and charts to display this data, including the Gantt and time-phased PERT charts of the more powerful project management packages.

Strong Contenders

All four of these packages are strong contenders for personal project management, but will require some careful consideration to match capabilities to your needs before purchase.

The people managers like Contact Plus, Telemagic, Act and Maximizer are centered, as one might expect, around people. They help to organize information such as names and addresses, and to cross reference them to appointment schedules and to-do lists. These packages are usually tailored for sales and marketing activities, but can be used in any situation where there is a need to track your contact with lots of individuals or companies. The people list is usually the central module, and in addition to calendars and to-do lists, these packages often provide features such as automatic telephone dialing, correspondence and call-tracking.

Easily Interfaced

Contact Plus has all the basic features except the built-in word processor, but this is no real loss since it will interface with any word processor you choose. It is the lowest cost package, but takes a lot in the installation effort. If you are an experienced computer user, it may be the best value for you.

Maximizer is next in price. It is fast and easy to use, but unfortunately does not allow easy customization of existing fields. Instead, you create a separate table of data in addition to the default fields. Telemagic is very much like Max-
(Continued on page 56)



Bitstream Type — The power to stop readers on the page.

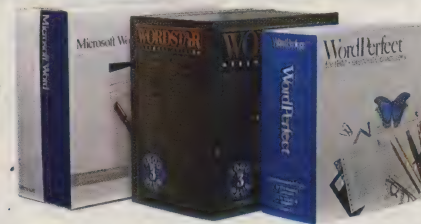
Bitstream type has rapidly become the most popular way to give printed documents the crisp, professional appearance you get only with superior type.

But there's actually a more important reason to use it. And that's for the power it gives you to create precisely the image you want for each of your documents. So they'll stand out, get read, and be remembered.

And with Bitstream type, it's easy to do. We offer more than 50 different typeface packages, each with 4 distinctive typefaces. And each with its own style and personality. They work with just about every leading MS-DOS® word processing and desktop publishing package. And with PostScript®, HP® LaserJet® Plus, Series II and compatible printers.

Best of all, each Bitstream scaleable type package gives you hundreds more sizes — and far more flexibility — than font cartridges, and for about the same price.

Let us show you how to put the stopping power of Bitstream type to work for you. Just call us at 1-800-522-FONT, ext. 2050 (617-497-6222, ext. 2050 in Massachusetts) for a free copy of "Express Yourself," and the name of your nearest Bitstream type dealer.



Bitstream type works with these and many other popular software packages.

Bitstream®

FONTWARE™

SCALEABLE TYPE

© 1988 Bitstream Inc., BITSTREAM is a registered trademark and FONTWARE is a trademark of Bitstream Inc. All product names are registered trademarks of their respective manufacturers.

Circle Reader Service Card No. 455

JUMBO SHRIMP.



NEC's new Electra™ 8/24 offers growing businesses big-size telephone features with a small-size price tag.

NEC dishes up a brand new phone system in a compact shell at a shrimp of a price. But that's the only small thing about it.

Jumbo features.

We've stuffed Electra 8/24 with over 80 advanced features and conveniences you'd expect only from a much larger telephone system. It comes with hands-free answerback on intercom calls. System and station speed dialing. Toll restriction. Conferencing, and more. All of which make your work day easier and more productive.

Jumbo flexibility.

We'll prepare your system any way you'd like. Choose from a variety of phones, including display and non-display models, a DSS/BLF console for reception and other high-call areas, plus door phones that offer a

door lock release capability. A microcomputer in each phone permits easy feature programming, phone by phone. Easy reprogramming, too! What's more, its modular design means Electra 8/24 grows as you grow, so your investment remains well protected.

Jumbo reputation.

Of course, the biggest bonus of Electra 8/24 is that it's made by NEC. A multi-billion dollar world leader in "C&C" (Computers and Communications), NEC's reputation for quality, reliability and innovation spans nearly 90 years. And that's no fish story. For details on NEC's new Electra 8/24, contact **NEC America, Inc.**, Business Systems Sales Division, 8 Old Sod Farm Road, Melville, NY 11747. Call toll-free **1-800-626-4952**. In New York State call **516-293-3015**.

NEC

TELECOMMUNICATIONS INSIGHTS

By Thomas J. Hargadon

Bandwidth Implications: the Alternatives

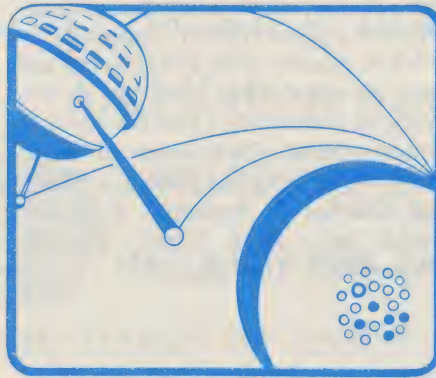
When Richard Dalton and I started writing the "Open Systems"* newsletter on managing office technology, ten years ago, AT&T was the only game in town. Basically, what was provided was voice-grade service to everyone with the odd data communications at 300–1200 baud over leased lines or value-added networks. It was only the most technologically advanced companies that had implemented any high-speed data communications (19.2kbs and above).

Modem Prices Are Down

Needless to say, we have seen a substantial increase in the use of available bandwidths since then. Nowadays, there are three or four alternatives to AT&T for long-distance service, including operating one's own private network. Prices for modems have come down to the \$100 level for 2400 baud, and \$600 for 9600 baud. Any large company worth its telecommunications salt does network management, utilizing the availability of leased lines and multiplexing to have bandwidths of T-1 (1.54magabps) with the really technologically advanced now routinely using T-3 (46megabps).

The movement toward higher bandwidth use is even more clear in the local area network area. Ten years ago, when LANS were supposed to take off, transfer rates of 128kbs were considered adequate. These days, it is trivial to go 1–6megabps with the 10megabps figure being quite common.

In both areas, the future will bring substantial increases in capacity and a fusion of telecommunications transmission and local area networks in such combinations as campus and metropolitan area nets, with bandwidths of 100megabps to over 600megabps being common. Acronyms such as FDDI, Sonet, Broadband Ethernet will all be real in two to four years, and will provide the standards background from which



these bandwidths can be easily accessed from high I/O work stations. It is reported, for example, that Apple has hired some very bright MIT graduate students to assist in the development of a 500megabps I/O computer product. (To the inevitable question, what does one do with such capacity, the usual, correct early reply is, you do interactive video and graphics, just because.)

The technology that will transmit these bandwidths is obviously fiber optics. But will only large companies or those in new developments have access to fiber to their workplace and work station? That is indeed a distinct possibility. The only widespread broadband access to be available in 1995, if the Regional Bell Operating Companies have their way, will be ISDN, which has a capacity of only 156kbs, if it all can be used.

This is substantially less than companies can get within their organizations now from local area nets and between buildings from leased lines, microwave and satellite, among other technologies. Thus there is a distinct possibility of an invidious distinction between large or heavy users of substantial bandwidth and all others.

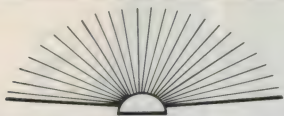
Potentials and Pitfalls

I am not at all sure that many companies and public sector organizations are aware of the possibilities, potentials and pitfalls of this new telecommunications capacity. I recently attended a seminar on Strategic Computing in the Public Sector at Harvard University's Kennedy School of Government. While it was clear that the highly qualified participants were well aware of increases in CPU power for mainframes, there was practically no awareness of the potential increases in CPU power beyond the 386 for personal work stations. In the telecommunications area, ISDN was perceived as the be all-end all, with fiber being considered a far out, long-term possibility. My judgment was that the public sector (federal, state and local) had the distinct possibility of joining the late adopters in the business community, but losing out in obtaining the advantages of the bandwidth revolution.

My feeling is that many more organizational people will have to realize the potential of the new bandwidth and develop mechanisms for obtaining at least part of that capacity, no matter where they are, or face the possibility of being left behind at home or work. **TO**

* OPEN SYSTEMS Newsletter is still going strong, appearing monthly. Yearly subscription is \$135 and includes four extra Special Reports. Free sample copy available on request to Open Systems Newsletter, P.O. Box 1231, Stamford, Conn. 06904.

TOM HARGADON is chief executive officer of The Support Company, a San Francisco-based firm that provides customer services and support systems.



NEW BOOKS



Step-by-Step Approach to Using Desktop Publishing

Several years ago, the ability to create effective graphic images belonged to art directors and design professionals. In more recent times, desktop publishing has changed this by eliminating the many instruments required to create quality graphics. Still, understanding how to use desktop publishing programs is essential before one can reasonably expect to produce top-notch graphics.

With this in mind, Roger C. Parker has authored "Looking Good in Print: a Guide to Basic Design for Desktop Publishing." Text is geared to readers with little or no graphic design background who want to make the most of their desktop publishing investment. Also, it is written in a generic style, making it applicable to users of everything from Apple Macintosh or the IBM PC/AT to Ready-Set-Go or Ventura. Topics discussed include common design pitfalls, design makeovers, developing a format and style, creating newsletters, catalogs and tabloids, newspaper and magazine advertisements, brochures, books and training manuals.

"Looking Good in Print: a Guide to Basic Design for Desktop Publishing," by Roger C. Parker. Ventana Press, Box 2468, Chapel Hill, N.C. 27515. 224 pp., \$23.95.

Enhancements for Lotus 1-2-3 and Symphony

A directory of enhancement programs for Lotus 1-2-3 and Symphony is the thrust of "Making Lotus Work Harder For You." Text provides information on 1012 enhancement products from 476 vendors. Each listing offers product description, information about the vendor, product pricing and its compatibility with various versions of 1-2-3 and Symphony. Listed products range in price up to \$37,500. They are organized in 61 product categories, which include accounting and bookkeeping, add-in development tools, administration and billing aids, backup and file management, banking industry, budgeting and planning, cash management and many more. "Making Lotus Work Harder For

You," by Vericomp Publishing, Box 5238, Grand Junction, Colo. 81505. 287 pp., \$19.95.

A Directory to the Directories of 1989-90

A comprehensive listing of available international directories is the thrust of "International Directories in Print 1989-90." Text provides detailed information on directories from more than 100 countries, serving as a helpful resource for global marketing and research projects. More than 5000 entries are arranged in 15 subject sections covering business and industry, law and government, entertainment, science and engineering, the arts, and other interests. Professional, scientific, industrial and other types of market segments are covered. Index reveals which directories are published in a given country; locates directories in specific fields and subjects; and finds an entry when only one or two words of a directory's title is known.

"International Directories in Print 1989-90," edited by Julie E. Towell and Charles B. Montney. Gale Research Inc., Book Tower, Detroit, Mich. 48226. 1125 pp., \$175.

Computer Virus: What It Is And How to Defend Against It

A short time ago, a Cornell University graduate student unleashed a virus into the computer systems of several large organizations. While the virus produced only minimal damage, it was enough to raise discussion of just what it is and, what, if anything, can be done to prevent such an invasion in future. Contributing to this discussion is Ralf Burger, author of "Computer Viruses: A High-Tech Disease."

Mr. Burger's book, while timely, is also informative, discussing everything from the history of the computer virus to designing virus-proof operating systems. The author offers examples of viral software manipulations and what to do when a virus is discovered. Various charts are used to clarify the discussion. "Computer Viruses: a High-Tech Dis-

ease," by Ralf Burger. Abacus, Inc., 5370 52nd St. SE, Grand Rapids, Mich. 49508. 282 pp.

A Guide to 1000 Smaller Growth Firms in the U.S.

A listing of the entrepreneurial and professional leaders of the top 1000 smaller growth companies in the U.S. is the focus of "The Over-The-Counter 1000," a directory. Text provides names, titles and phone numbers for more than 20,000 key executives; name, title and affiliations of company board members; current addresses, phone and facsimile numbers of each company, as well as their subsidiaries, divisions and affiliates. Also included is description of each company's product line and estimates of annual revenues. Companies can be indexed by name, state, industry and individual executives.

"The Over-The-Counter 1000," edited by David J. Hurvitz. Monitor Publishing Co., 104 Fifth Ave., New York, N.Y. 10011. 555 pp., \$100.

Running an Office Requires Effective Leadership Skills

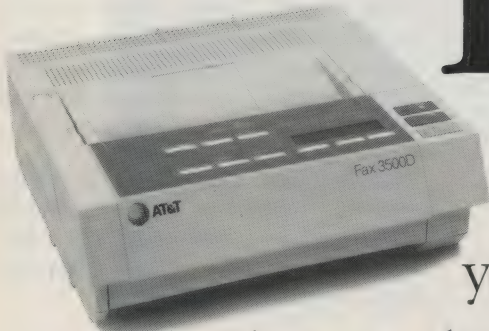
Trust is vital. A leader should rarely be a problem solver. A leader must have stamina. All of these are good suggestions to follow when trying to improve leadership techniques. They are, however, a small part of Perry M. Smith's new book, "Taking Charge: Making the Right Choices."

With an eye toward explaining how to run a busy organization, the author provides a comprehensive look at the leadership role, discussing the fundamentals of leadership, the artful areas of hiring the right people for the right jobs, counseling subordinates, leading in crises, and making decisions. He also goes a step further by teaching how to think through tough decisions.

"Taking Charge: Making the Right Choices," by Perry M. Smith. Avery Publishing Group, Inc., 350 Thorens Ave., Garden City, N.Y. 11040. 261 pp., \$10.95.

(To page 30)

REASSURING FAX.



Over the years, AT&T has set the standard for network quality and reliability.



Now you can expect the same from our fax machines.



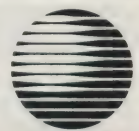
And if there's ever a problem, it's comforting to know that AT&T service people are ready to assist you nationwide, with 24-hour



"hot line" service.



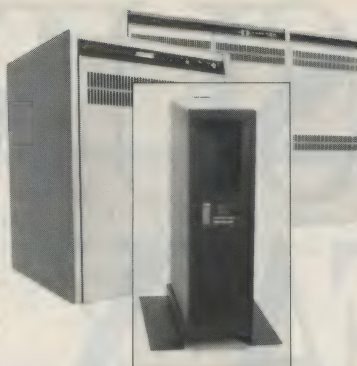
To find the right fax for your business, call AT&T at 1 800 247-1212, Ext. 129.



AT&T

The right choice.

NOW! Computer/Fax integration for transaction processing



FAXCOM® 1000+ automates fax delivery, from your computer system all the way to customers' fax machines.

Unlike PC fax boards, the FAXCOM 1000+ is a true multi-user system solution. You can transmit invoices, purchase orders and other documents from any terminal on your computer system or network, via the FAXCOM controller, to any Group III fax machine worldwide. The FAXCOM will even store in memory your standard business forms and merge them with data files for transmission.

The FAXCOM 1000+

- eliminates the time and overhead of regular mail
- works with IBM®, DEC™, HP®, Wang®, Tandem® and other systems

- connects to your existing system without hardware modifications
- tracks documents to destination
- improves document quality by eliminating optical scanning

Get the competitive edge NOW with BISCUM's computer-automated fax delivery system — the FAXCOM 1000+.

BISCUM

BISCUM, Inc.
85 Rangeway Road, Billerica MA 01821
Tel: (508)670-5521 FAX: (508)671-0095

Circle Reader Service Card No. 483

PERMA POWER FIGHTS SURGES TWO WAYS...

OR WE PULL THE PLUG

Perma Power Surge Suppressors give you peace of mind, knowing that your computer is protected against power line surges and against suppression element failure.

PROTECTION FROM POWER LINE SURGES

Our unique 2-stage circuit uses heavy-duty metal oxide varistors to protect you against high-voltage lightning-induced surges, and high-speed semiconductor devices to protect against frequent fast surges. Only this kind of hybrid circuit can provide the necessary high power dissipation while still providing fast response time and low let-through voltage.

PROTECTION EVEN IF WORN OR BURNED OUT

Any surge suppressor can wear or burn out. With Perma Power you can relax! Power to your system is *stopped*... as completely as if the plug was disconnected. Other surge suppressors may use a light or buzzer "warning," while they continue to let raw, unprotected power feed directly into the computer. Only with Perma Power's patented Automatic Shutdown* feature is your equipment kept safe from damaging raw power.

Ask for Perma Power Extended Life Surge Suppressors, in 2, 4, or 6 outlets and Power Control Center models to insure your computer is being protected. At office, computer or electronics dealers nationwide.



*Patent #4,578,579

PERMA POWER® Electronics Inc.

5601 West Howard Avenue • Chicago, Illinois 60648
Telephone (312) 647-9414

Index to Directories From Across the World

Information on a vast range of directories from more than 100 countries is the thrust of "International Directories in Print 1989-90," by Gale Research. The book boasts more than 5000 entries arranged in 15 subject sections covering business and industry, law and government, entertainment, science and engineering and many other market segments. Detailed index allows reader to determine what directories are published in a specific country, locate directories in specific fields and subjects, and find entries when only a word or two of a directory's title are known.

"International Directories in Print 1989-90," edited by Julie E. Towell and Charles B. Montney. Gale Research Inc., Book Tower, Detroit, Mich. 48226. 1125 pp., \$175.

A Dictionary of 4500 In-Use Computer Terms

Definitions of 4500 computer terms are listed in "Webster's New World Dictionary of Computer Terms." Definitions are offered in jargon-free language, and designed to meet the needs of the professional user and the lay person. Terms are those that are most likely to confront the beginning computer user. All entries are listed in A to Z listing, are cross referenced for greater clarification and describe important software packages and their terms. Gigabytes, mflops, jaggies, salami technique, Dvorak keyboard, bugs and Mumps are some of the terms explained.

"Webster's New World Dictionary of Computer Terms." Simon & Schuster Reference Div., 1 Gulf and Western Plaza, New York, N.Y. 10023. 412 pp., \$6.95.

Non-Static Cleaner For:

- Desks
- Static Mats
- Computers
- Copiers



Wiemer's, Inc.

37 West Center Street
Southington, CT 06489
203/276-8771

Circle Reader Service Card No. 333

TAB[®] just made printout filing a snap!



Now,
your printouts
can be ready for
center-hook, T-bar, or drop
filing in a matter of seconds.

TAB's new Media Manager[™] quickly
snap-adjusts to popular printout sizes.
Filing is simplified by eliminating separate hang-
ing devices for each binder size. And, Media Manager
saves time by simply attaching to the cable posts with-
out removing the printout.



This is just one example of how the Media Manager System helps organize printout and related media in one place... and in less space. Work-in-progress can be stored in a Media Manager Unit Box or Sling. Frequently updated reports snap directly into a Media Manager Cartridge—while permanent documents in cable post binders hang beside them in the same flexible system. Let your TAB Representative prove it's a snap to eliminate clutter and take full advantage of your vertical filing space.

Put Media Manager to work for you by calling
800-672-3109 Ext. 4111. In California **800-742-0099
Ext. 4111**, or write us at 1400 Page Mill Road,
Palo Alto, CA 94304.

TAB
The Office Environment People

SUPER SURGE™

SNAPIT
A LEVITON COMPANY

Superior Features! Unbelievable Low Price!
Never so much surge protection at great savings.

Only **\$59** suggested retail

THREE-STAGE PROTECTION

• Hot to Neutral • Hot to Ground • Neutral to Ground



Protects equipment from electrical surges by absorbing "spikes" as they happen. For computers, telephones, modems, CRTs, refrigerators, microwaves, stereos, TVs, VCRs.

For information or catalog sheet, call or write

SNAPIT
A LEVITON COMPANY

CABLE ELECTRIC PRODUCTS, INC.
P.O. Box 6767
Providence, RI 02940 • Tel.: (401) 781-5400

Desktop

(Continued from page 12)

the desktop market: "Users are demanding more sophistication and functionality from computer publishing systems and, more importantly, realize the need to obtain a package suitable for their specific documents and applications." For vendors, he says, this means that they must produce products with "increased functionality" and address other competitive issues which go beyond price and performance.

Mr. Kreindler adds that at one time, operators were ignorant of the capabilities of computer publishing systems. But as they become familiar with the basics of graphic arts applications on computers, they are finding it easier to electronically process and distribute information in a short timeframe. This capability has produced a shift from a central publishing process to a decentralized one. However, distributing the process means the user must have systems that address themselves to both composition and pagination needs.

Excitement to Come

The initial flurry having passed us, Mr. Kreindler says that the real excitement in desktop publishing can start up. "We can expect to see the fulfillment of this technology as the functionality and benefits of word processing, desktop publishing and relational database software begins to meld with advances in operating systems, computer platforms, operating environments, communications and storage. Combined, these technologies will deliver true document processing and management capabilities—the next solution, according to Mr. Kreindler.

Meanwhile, Ajit Kapoor, another desktop analyst and vice president of CAP, predicts that the popularity of UNIX will continue to grow as "networking and multitasking become the desirable productivity tools for future desktop applications."

According to a recent survey by his firm, 80% of the users say they made the right decision in implementing UNIX and would make the same decision again. Noting that publishing is the critical backbone application for UNIX systems, Mr. Kapoor says that it offers "significant benefits" to the publishing application user. **TO**

Merging Fax

(Continued from page 18)

Ind., has connected the product to its Hewlett Packard 3000 system to help transmit hundreds of purchase orders weekly to vendor fax machines. Cummins Cash of Grand Prairie, Texas, has linked six units to a Tandem system to help transmit interstate trucking permits to more than 500 facsimile units around the country. Biscom also counts AT&T, Colgate-Palmolive, Dow Chemical, MCI, Northern Telecom and NYNEX among its customers.

In an interesting twist, MCI Mail will provide its fax link by way of minifax servers. A PC, electronic mail network, minicomputer with a fax server and a fax machine will thus join to provide one apparently seamless transmission link.

An All-Fax Network

While Biscom allows users to network fax machines to minis and mainframes, 3M Co. has a product that enables them to create an all-fax network. The 3M FaxXchange network switch provides complete networking capabilities for up to 1000 individual units. The switch will convert protocols among different classes of machines, provide automatic accounting reports, and allow for simultaneous transmission of a single document to up to 1000 destinations. This will allow MIS managers "to gain control of the large de facto networks of fax terminals installed behind their backs," says a 3M representative. Pricing ranges from \$40,000 for a stripped-down, two-port unit, to \$100,000 for a fully-configured, eight-port system.

Two-Track Industry

The fax industry is developing along two tracks. The first stresses technological developments. Here, we will see the advent of low-cost, plain-paper machines, an eventual migration to Group IV technology and increasingly sophisticated enhancements to Group III machines. The second track stresses the integration of fax with other types of messaging and information management systems. Developments along this second track will help fuel fax sales. **TO**

PAUL D. THOMAS is an analyst with Integrated Business Systems, International Data Corp., Framingham, Mass.

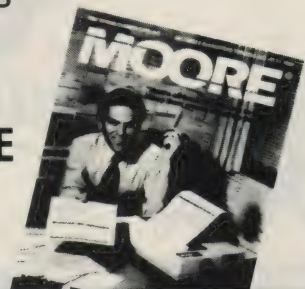
FREE SAMPLE FORMS DESIGNED TO FIT YOUR SOFTWARE.

Invoices, statements, checks...virtually any forms you use, we have them to fit *your* software, *your* office and *your* needs.

We'd like to prove it. Just tell us what accounting software you use, and we'll send you a set of sample forms...*free*.

We'll also send you a *free* Moore catalog. It's packed with the supplies you need for a more organized office. And backed with the service guarantees you need for a more efficient operation.

PUT MOORE ON YOUR SIDE
Call 1-800-323-6230



FREE SAMPLE FORMS

☐ **YES.** Rush me a sample set of FREE forms for the accounting software checked below. And send me a free catalog of other Moore products. (For software packages not listed, call Moore Product Support at 1-800-323-6230.)

- | | |
|--|--|
| <input type="checkbox"/> Accounting Plus | <input type="checkbox"/> Peachtree |
| <input type="checkbox"/> CYMA | <input type="checkbox"/> Real World |
| <input type="checkbox"/> DAC | <input type="checkbox"/> Bedford |
| <input type="checkbox"/> Open Systems | <input type="checkbox"/> Solomon III |
| <input type="checkbox"/> Multi-Purpose Forms | <input type="checkbox"/> BPI/Computer Associates |

Name _____ Title _____

Company _____

Address _____

City _____ State _____ Zip _____

Number of Employees _____ Phone _____

Mail coupon to:
Moore Business Products Catalog Division
P.O. Box 5000 Vernon Hills, IL 60061

MOORE®

177F38

Electrical Disturbances And Computer Protection

There are several types of devices available and each one is effective in meeting specific needs.

By Mark Rowh

Computers, computers . . . what office can do without them? Virtually every modern business function, from word processing to accounts receivable, depends in one way or another on computer capabilities. And computers, of course, depend on electric power and are therefore vulnerable to line surges or other disturbances.

Protecting computer equipment from power disturbances is one of the smartest moves one can make, since such disruptions

can result in lost data, lost productivity and lost business.

Unexpected voltage increases or decreases can damage computers, printers, modems and other peripherals, causing thousands of dollars of damage in less than a second. But it's not just the hardware itself which must be considered when thinking of protective devices. Repairing or replacing equipment would be trouble enough, but how long would it take to reproduce vital data lost if a

system were blown due to an electrical disturbance? Personnel costs in reconstructing information alone could be prohibitive, not to mention costly interruptions in service to customers, and the loss of important business data which might never be recovered.

Such a disaster need not happen to your business, however, thanks to the availability of power protection devices. These units are engineered to take into account the fact that electrical power is subject to a variety of potentially damaging fluctuations.

Lightning Is One Cause

Power disturbances are all too common. One may think of lightning as the most likely culprit, but it is actually a factor only about one percent of the time. Much more common are surges and disruptions caused by other equipment such as air-conditioners, elevators, drinking fountains, fluorescent lights and other electrical devices. Utility companies themselves create frequent problems through grid-switching in balancing regional demands for electricity, reductions due to increased demands in peak periods, and similar considerations.

Problems in electrical power affect computer equipment in various ways. Line noise, for example, may restrict a computer's ability to detect differences in voltage, resulting in lock-up or disk-drive errors. Voltage spikes and over-voltages provide a greater level of power than a system is designed to handle, which can seriously damage the equipment. At the other extreme, brownouts and other undervoltage situations can cause a computer to re-boot, losing data in the process. And a blackout can cause a complete systems crash if equipment has no alternate power supply.

Electrical disturbance problems can be prevented with several types of devices. Each is effective in meeting specific needs, and which is best depends on the type of computer equipment in operation and the scope of its use.

What UPS Systems Offer

Uninterruptible power systems (UPS) provide the most complete protection from power disturbances. The key to these systems is the fact that they remain on-line all the time, routing power through batteries while charging them for immediate use should a power failure occur. Unlike other battery systems, which may kick-in only after a delay of



several milliseconds, UPS prevent the loss of power for even a single millisecond. The quick transition to battery power prevents against any damage or loss of information, and then provides electricity for up to an hour while normal power is being restored.

Such protection can be critical to sophisticated computer systems, and particularly those situations where large volumes of data are involved. If your business requires that the system be maintained without interruption, then UPS offer the one sure approach for guaranteeing constant power.

In addition to providing protection against blackouts or other failures, the systems continuously control power so that other, less catastrophic problems also are prevented. By filtering and conditioning power going to the computer, they eliminate the full range of potential problems, including power surges, high voltage spikes and transients, chronic overvoltage, brownouts or power sags, and electrical noise. This equipment is available for smaller minicomputers as well as large, mainframe systems. Most units are compact and lightweight, and designed to be housed in cabinets or

mounted on racks. Some units operate so automatically that not only do they switch to batteries when power is interrupted, they then switch back as soon as it is restored. Most UPS devices are simple to install and use.

Because it provides such a wide range of protection, UPS equipment is the most elaborate and the most expensive. But simpler, less costly devices will meet many power protection needs.

The Distinction Blurs

One such alternative is provided by standby power systems (SPS). Unlike UPS, the batteries in most SPS devices do not supply continuous power to a computer until after a blackout has occurred. Thus, ordinary SPS devices do not provide power-conditioning, and their use involves the possibility that a power interruption will mean a slight delay during the switch to battery power.

The distinction between UPS and SPS becomes blurred as improvements are made in the latter equipment's capabilities. In some cases, the transfer time to battery power takes no more than a millisecond, and in the process comes close

to UPS standards. Some systems also incorporate circuitry to protect against noise, high line voltages, spikes and surges. But all SPS units are not this sophisticated, so it's important to compare specifications carefully against the needs of your particular business.

Power-conditioners provide a different level of protection. They do not furnish any kind of back-up power, so offer no security against a blackout. But for the other 99% of power problems, these units give reliable protection. For example, if the voltage increases to 140 volts or decreases to 90, your computer will still operate properly, where without such a conditioner you might end up with damaged circuits, shut-down of peripherals and erratic or lost data. Similarly, electrical noise is filtered out, and clean, controlled power is assured on a constant basis.

If computers are important to your business, a close look at power controls will be a worthwhile step in protecting your operation. **TO**

MARK ROWH is an associate vice president at Greenville (S.C.) Technical College, and a frequent contributor to this magazine.

Would Savin, Murata or Canon repair or replace your fax or copier free if it were damaged by a power surge?

No, but we will.

That's how much we believe in the quality of our complete line of surge protectors.

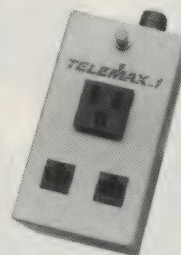
Panamax stands behind every protector with the only lifetime warranty that guarantees free repair or replacement of any fax machine, copier or any other office machine damaged by a transient power surge while properly connected to a Panamax surge protector.

Consider how Panamax surge protectors eliminate 60-70% of all intermittent problems that plague your equipment now. It's quite clear that Panamax will prevent problems.

800-472-5555 **PANAMAX®**

800-472-6262 in California 800-443-2391 in Canada
150 Mitchell Blvd., San Rafael, CA 94903-2057 (415) 499-3900

Panamax is a registered trademark. Savin, Murata and Canon are registered trademarks of respectively Savin Corp., Murata Business Systems, Inc. and Canon USA Inc.



TO/2/89

Professional Management And Your Phone System

Service providers lease lines from local phone companies in bulk and offer them to almost any business operation in a given area.

By Henry Baird

The telephone systems industry now offers so many choices of equipment and service that managing them is now considered just as important.

While complex PBX-type switching equipment requires a technician or telecom manager to program and maintain the system, most U.S. companies do not have one in-house. Thus for companies that must manage their system without direct assistance, the responsibility generally falls on the office manager, who is usually too busy to keep up the pace.

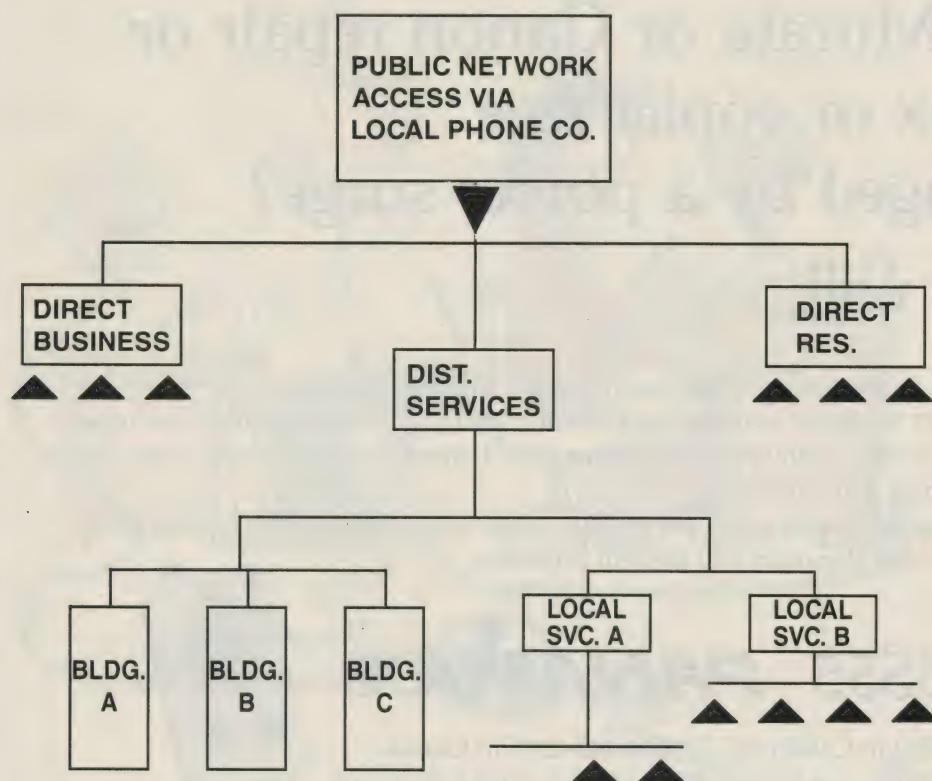
If telephone management is a big headache in your company, a professional telephone system management service may provide an answer.

Telephone management services exist in two forms. The first—"tenant service"—is available if the building's management offers telephone service as part of a leasing agreement. The second is provided by independent local-line service vendors who operate in a specific area covered by a telephone company switching center. They serve a variety

of businesses in separate locations.

Regardless of the management service used, you are initially required to sign over or "supersede" to the service any existing telephone number you wish to keep. In so doing, you agree to accept the service as your new phone company.

Telephone management services provide public network dial-tone to their clients through the distributor services group at the local phone company. The services contract with the phone company for large blocks of lines, designated as "common blocks," and assign phone numbers from the blocks to new clients.



Distributor services have emerged as a third source for accessing a public telephone network. There are two types of distributor providers: one offered by the individual office building and the other afforded by a local area provider. (Chart by author.)

Popularity Grew

The telephone service provided by building managements became popular three or four years ago. Under this arrangement, tenants use telephone equipment provided by the building and supported by a central PBX-type switch, usually with highly sophisticated telephone management capabilities. The building bills tenants for a local-line service, along with an equipment rental fee. The provider may also offer long-distance routing at a discount.

A word of caution, though. This telephone service commonly suffers from slender profit margins caused by high vacancy rates, maintenance costs, and a generally unsympathetic regulatory environment. When profit margins become unacceptable to a building owner, and service is removed, the tenants are frequently left with costly, unpleasant choices regarding the future of both their telephone equipment and local-line and long-distance services.

Telephone management offered by local-line service providers operates quite differently. These companies lease

lines from the local phone company in bulk and offer them to virtually any business within a particular geographic area. Additional options include discounted long-distance calling, as well as ongoing telephone system management services. In effect, local-line service providers act as distribution channels for the Centrex-type line service routinely offered.

For large customers, these services receive direct attention from a designated phone company account executive. They enjoy economies of scale and wide profit margins because they are independent agents for phone company services and have no direct operation or maintenance responsibilities. As with telephone service provided by building owners, these services assume direct billing authority for customers who, in effect, change phone companies when they subscribe.

There are many advantages to local-line services available on a limited basis nationally. Cost savings on basic service can total 10% to 25%, especially for customers with larger key systems who pay for several phone lines each month. Enhanced features such as call transfer, programable call forwarding, and local call accounting are available at minimal monthly cost. These services often avoid

the need to purchase or upgrade phone equipment, which remains under customer ownership. In fact, changes to existing equipment to accommodate the new service are usually unnecessary.

Owners of PBX-type equipment will generally benefit less from these services than key system owners because of line efficiencies and features already resident in a PBX. But if a business is facing an equipment replacement decision, and independent local-line service is available, it will be wise to enquire about phone equipment designed to capitalize on central office efficiencies available through a local-line service provider.

The Risks Involved

Risks of subscribing to a local line service include potential confusion surrounding the assignment of new billing numbers to a company, the service's ability to bill accurately, and minor changes in the way the phone system is used. For example, dialing "9" before all calls, as with PBX-type equipment, is necessary unless accommodated by special equipment.

Local service providers try to minimize the effect of these changes on new

customers. They will, for example, arrange for the retention of original listed numbers in an automatic call transfer arrangement with the local phone company. In addition, they provide an attentive customer service department that will instruct new subscribers on the use of enhanced line features that accompany the service, and assist in prompt resolution of billing problems.

What can telephone management systems offer? For a building tenant group: relief from centralized billing and large system service enhancements.

For the key system customer served locally, service enhancements at minimal cost, sharply discounted local-line costs and experienced assistance with telephone system concerns are some of the benefits.

Telephone service choices will be simplified eventually, but not before businesses have committed billions of dollars in an extraordinarily difficult decision-making environment. Telephone management services may offer the hedge a company needs. **TO**

HENRY BAIRD is president of Baird & Associates, an independent telecommunications consulting firm in Seattle, Wash.

GENSTAR
RENTAL ELECTRONICS, INC.

PC
The Rental Source
FREE Brochure

featuring
Personal Computers
FOR RENT NATIONWIDE

PC's from major manufacturers are represented including IBM®, APPLE®, COMPAQ®, and more.

Call today for your free copy, toll-free
(800) 227-8409 or (800) 331-3440 (in CA)

or write to:

Genstar Rental Electronics, Inc.

National Sales Manager
6307 DeSoto Avenue, Suite J
Woodland Hills, CA 91367

IBM is a registered trademark of International Business Machines Corp. Compaq is a registered trademark of Compaq Computer Corp. Apple is a registered trademark of Apple Computer, Inc.

GENSTAR
RENTAL ELECTRONICS, INC.

PC
The Rental Source



Full-Text Retrieval: What It Is and What It Can Do

Faster, cheaper CPUs and storage, and far better input devices are driving software down to micros.

By Heidi Gabrielson

Full-text retrieval is the ability to free-form search-and-retrieve any word or string of words from a textual database or large document collection. Some solutions search every word of a document while others skip predefined "stop words" such as prepositions, conjunctions and articles. Unlike information in a database management system, text in a full-text retrieval system is not stored in structured fields.

Text-retrieval software has been around on mainframes and on-line systems for nearly two decades, but has gained the reputation of being slow, expensive and difficult to use. So difficult,

in fact, that librarians undergo extensive training to learn how to query systems properly. And so expensive that they were used only for "mission-critical" applications like litigation or on-line information services. If a user was not careful or experienced, he could easily rack up a bill for hundreds of dollars.

But all that is changing. Faster and cheaper CPUs and storage, better input devices such as optical character recognition scanners, and improved text-handling algorithms are driving full-text retrieval software down to micros.

There are full-text retrieval packages designed to meet any requirement. If you

are looking for a personal information manager, think about installing a text-retrieval product on your local PC or Macintosh. They are moderately priced and range from \$50 to \$995. If you are looking for a corporate solution, there is an abundance of options available on supermicros and up to mainframes, priced anywhere up to \$150,000.

There are basically three types of retrieval methods: inverted index or keyword; character string search or pattern matching, and intelligent or relevant searches. But there are all types of themes and variations on these.

Today, the overwhelming majority of full-text retrieval systems use an inverted index structure. The index works like that in the back of most text books, except that all words are indexed in a full-text retrieval system. Indexing typically occurs in one of two ways: immediately after a document is entered into the system, or in batch mode at a time when there are no users on the system—usually at night or on weekends.

Like the Index of a Book

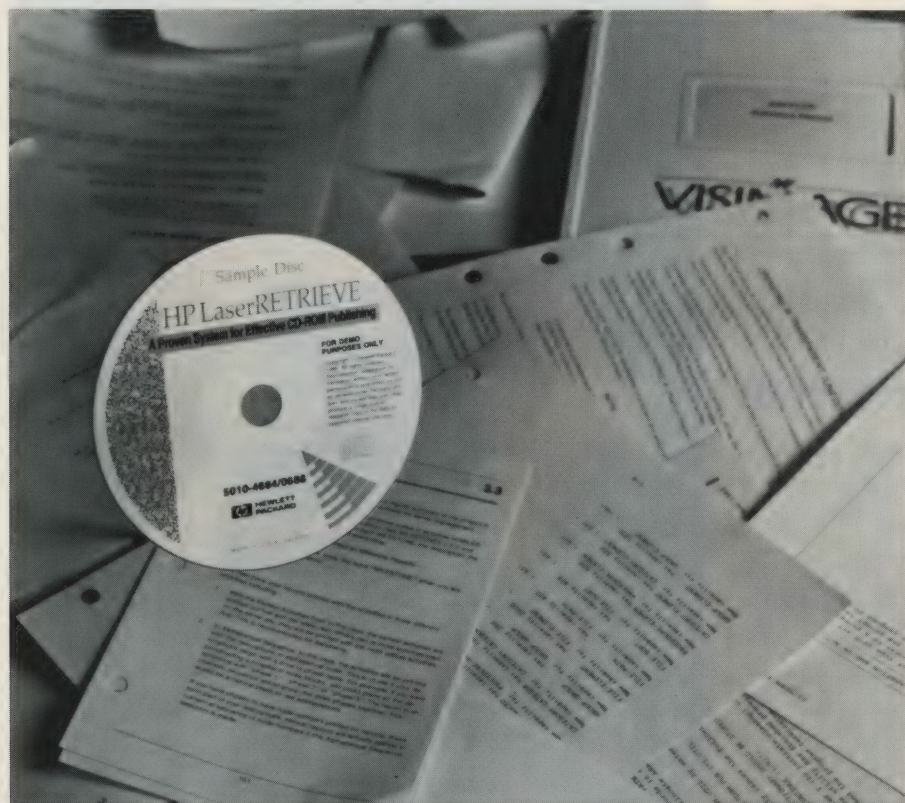
Just as the index of a book lists the pages where that word or phrase is located, the full-text retrieval indexes text as a list of words with pointers to the occurrences of a word. Some systems actually bring the user to the occurrence in the original text and highlight it. Querying a system requires knowledge of boolean logic.

The problem with this approach is one of precision and recall. Recall measures how well a system retrieves all the relevant documents; precision how well it retrieves only the relevant documents. With a boolean system, users typically retrieve less than 20% of the relevant documents while thinking they had retrieved more than 75%. Still, 20% is better than what is found without a retrieval system.

Another Inconvenience

Another problem or inconvenience with the index-based approach is that each time a document is edited, added to or deleted from the text base, the entire index must be updated. Many of the text retrieval systems that are closely tied to one hardware platform use pattern-matching techniques. The UNIX operating system also offers pattern-matching utilities based on algorithms.

The typical hardware-based text management solution is a text array processor that uses a character-by-character



LaserRETRIEVE from Hewlett-Packard Co. provides components needed to transform data into a CD-ROM application: user-interface and database-build software.

method of retrieval. The interface software resides on the host system. The text array processor sits inside the host hardware and consists of two parts: a term match processor board and a logic resolution processor board. Because queries are off-loaded to a separate hardware component, the host CPU performance is not brought to its knees as it often is with software-based systems.

The user formulates his query using the standard boolean search and sends it to the text array processor, freeing the host for other queries. The term match processor grabs the query and compares it to the text database at a rate of 60 million characters per second. When this step is completed, the query is sent to the logic resolution processor.

The advantages of character string searches arise because there is no indexing. Data is added discretely. This means new text can be added on the fly and is immediately available for searching. The ability to add text discretely also enables these systems to do something called profiling. Profiling allows the user to scan incoming text for search terms and store the accepted documents for viewing at the end of the day.

The major problem with this type of system is resource utilization. The cost to the user is on a per-search basis rather than a one-time cost at the time of indexing. Each time the user sends a query, the entire text database is searched linearly. With the inverted index approach, the major drain on resources occurs on indexing.

A Handful, So Far

So far, there is a handful of companies that perform "intelligent" searches. Some require the user to build a knowledge base of topics and terms before anything can be searched. Others build filters to sort documents as they are entered, making retrieval faster, easier and more efficient. And, there are still others that search, using a hybrid of techniques like combining an inverted index structure and word ranking.

Concept-based retrieval systems require the user to build a knowledgebase of topics and terms at system installation. The user, usually someone with expertise in the subject and jargon, builds a library of "topics" from the inverted index. A topic is a hierarchy of weighted

terms that describes a single subject.

Some disadvantages are that topics can be somewhat difficult to build and to navigate. Similarity searches allow the user to present a document or section of a document to the system and ask for all documents that are similar in content to the original.

Similarity searches stimulate the retrieval of tangentially-related documents. This may not be important if the user is knowledgeable in the field he is researching, but it is crucial when the user is in a learning mode. Boolean search, because it is straightforward, is practical when the user has a good idea of what he is looking for.

In order to perform a similarity search, the document should contain two indices—one inverted index and one vector index. Like the inverted index, the vector is created at the time of indexing. The system analyzes the content of the document to determine which words and phrases are important descriptors of it. **TO**

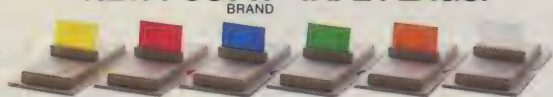
HEIDI GABRIELSON is a systems analyst who lives in Harrisville, R.I.



USE THESE OR GET LOST.

With all the paper around these days, it's easy to lose a fact, figure or an important point. But not if you use new Post-it™ brand Tape Flags to flag, tab and color code. Made with the same special adhesive found on Post-it™ brand notes, they'll stick securely to the page (and remove without damaging important originals). There are six eye-grabbing colors—each in the handy new pop-up dispenser. For a free sample, just return the coupon. Or look for them wherever you buy office, school or art supplies.

NEW POST-IT™ TAPE FLAGS.

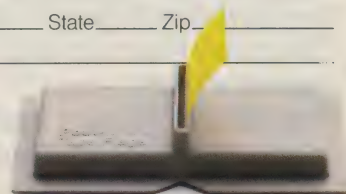


© 3M, 1989. "Post-it" is a trademark of 3M. 3M Commercial Office Supply Division

Yes. Please send me a free sample of Post-it brand Tape Flags.

Name _____
 Company _____ Title _____
 Address _____
 City _____ State _____ Zip _____
 Phone () _____

MAIL TO:
 Post-it Tape Flags—Free Sample
 3M Commercial Office
 Supply Division
 P.O. Box 33050, 3M Center
 St. Paul, MN 55133



O-2-89

Circle Reader Service Card No. 485

3M

Federal Office Systems Expo Next Month in Washington

For functional managers there will be 50 sessions, and for technical managers and professionals 37 sessions are scheduled for FOSE, the Federal Information Systems Conference & Exposition, Mar. 6-9 at the Washington Conference Center.

"The needs of these managers and professionals are different, even when the issues are the same," said Diana Simmons, vice president of conferences for the show's sponsor, National Trade Productions. "For that reason," she added, "this year's event has been carefully designed to answer the immediate needs of both groups."

Keynote speaker is Rod Canon, president and CEO of Compaq Computer Corp. In his Mar. 8 address, he will discuss "The Future of PCs: the 80386 and Industry Standards Architecture." He will speak at noon.

Billed as "America's Major Information Systems Conference and Exposition," FOSE will cover data management and standardization trends, software integration and connectivity, information systems, executive informa-

tion support systems, digital image/optical disk technologies and applications, and computer graphics for management and presentations.

Special events will include a Software Symposium sponsored by the Capital PC User Group and Integrated Software Federal Users Group; a Computer



Graphics Theatre, which will offer continuous showings of video presentations; and applications briefings by vendors' technological experts. Also to be featured are special sessions by the Office of Personnel Management, Federal Reprographics Assn.; General Services Administration; Defense Automation Resources Information Center, and others.

The exhibits of over 400 leading industry vendors will be on display.

In addition to the scheduled presenta-

tions listed below, the conference will hear talks on "What Does Open Systems Mean for the Government Office?," by Bob Smith, customer marketing manager, Sun Microsystems Federal, Inc.; "AI Database Technologies Working Together," by Michael L. Brodie, manager, intelligent database systems department, GTE Laboratories, Inc.; "Software: What's New and What's Good?," by Marshall W. Magee, president, Magee Enterprises, Inc.; "Micros and Mainframes: Integration Through Emulation," by Dwayne Walker Sr., connectivity product manager, Ashton-Tate; "Merging LANs and Minicomputers: Choosing the Best of Both Worlds," by Jeffrey Horn, consultant, Ernst & Whinney/Network Strategies; and "OS/2 and UNIX: New Tools for Integration," by Ann Dooley, editorial director, Computerworld Focus on Integration.

For more information on the exposition, contact National Trade Productions, 313 South Patrick St., Alexandria, Va. 22314 or 800/638-8510. **TO**
(A preview of some of the products to be seen at FOSE begins on page 45.)

Among the Program Highlights

Monday, March 6

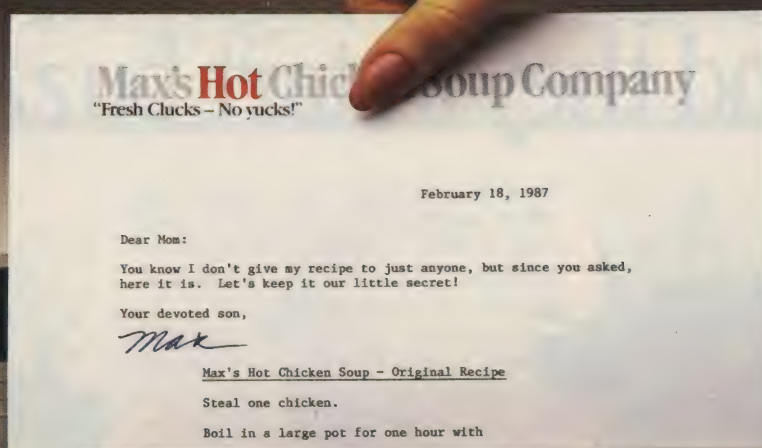
Top Management Computer Use: EIS and ESS.
Data Management and Standardization Trends.
A Manager's Guide to Information Systems.
Integration/Connectivity.
The Evolving Role of LANs.
Effectively Planning and Designing a LAN.
Providing Hardware Maintenance and Support Through the Information Center.
Optical Disk Technology: a Management Overview.

Tuesday, March 7

How to Support and Enhance the Work Station Environment Through Information Centers.
Training: How to Keep Them Coming Back for More.
Off-the-Shelf Solutions to Building an EIS/ESS.
Effects of Digital Image/Optical Disk Use.
What's Available in Macintosh Graphics Software and Hardware Today.
HyperCard: the Next Generation of Software.

Wednesday, March 8

Micros and Mainframes: Integration Via Emulation.
Implementing LANs.
The Impact of Global Standards on Integration Tech.
Controlling Information: The Standards, Privacy and Security Issues.
Comprehensive Security Management: an Overall Strategy.
Future Directions in Management Computer Use, and How EIS/ESS Contributes to the Change.



PANASONIC PRESENTS LITTLE BIG MOUTH.

Panasonic's MP-S50 is the lightweight little paper shredder with the heavyweight appetite! It shreds up to 7 sheets of letter or legal-size paper in 3 seconds—almost twice as fast as its predecessor, the MP-S10 model. Hefty bond paper and photographs are no match for its powerful teeth!

A built-in electric eye tells the MP-S50 when to start eating. Simply insert documents or records—the shredder turns on automatically. When everything's been chewed to shreds, it stops! And if the MP-S50 happens to get jammed, a quick flick of the stop/reverse

button automatically reverses the blade operation. The shredder is up-and-eating again in seconds flat!

The MP-S50 is portable, too, weighing in at just 24 pounds. It feels at home just about anywhere in your office—by the desk, copier, wastepaper basket or any other convenient place!

So if there are things in your office you don't want to get out, feed them to the Panasonic MP-S50. It's one big mouth that will keep your secrets!

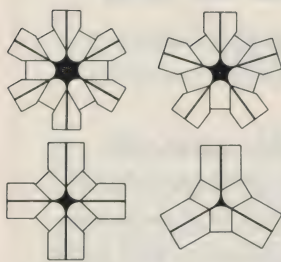


MP-S20 Personal Paper Shredder
13³/₈"W × 15¹/₁₆"H × 13³/₈"D

MP-S50 Personal Paper Shredder
with Auto-Start/Stop.
13³/₈"W × 19¹/₂"H × 13³/₈"D

Panasonic®
just slightly ahead of our time

Give workers the right environment and they'll start buzzing.



A beehive. It's one of nature's most efficient, productive work areas. That's why we used its functional design for our Kalidascope 360™ furniture system. The secret? Cluster. Just like a beehive, up to six workstations are

clustered together off a center stem for maximum efficiency. In a mere 12' 6" diameter up to six people can work efficiently together. While still maintaining total comfort and privacy.

With the Kalidascope 360 clustered system, you won't get stung on space, either. Featuring a unique concave stem, it provides 40% more work area in less overall floor space than conventional systems. And a variety of work surfaces, pedestals, storage units and electrical components are available to enhance

and personalize each work area. For the Kalidascope 360 dealer nearest you, call **1 800 431-4958** (914 562-3100 in NY). And get your office buzzing.



Shown is the space-saving Kalidascope 360 five-cluster system with green neutral fabric and oak laminate.



DENNISON MONARCH 

MacArthur Avenue, P.O. Box 4081
New Windsor, NY 12550-0108

Circle Reader Service Card No. 460

On Display at FOSE '89

Full-Featured PC

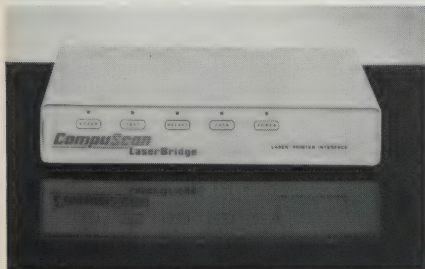
◆ Amstrad, Inc. will unveil Model PC2086, a full-featured microcomputer that can be used as a stand-alone system or as part of a large, multiuser network. Has MS DOS 3.3, 640K memory, high-level VGA graphics capabilities, mouse,



and choice of monitors. Has an 8086 16-bit main processor running at 8 Mhz. Comes configured with either one or two 3½" 720 KB floppy disk drives or with an optional 30Mb hard disk using 1:1 interleaving. In addition, an external adaptor is built in to accommodate users with data stored on 5¼" floppy disks. **For More Information Circle No. 320.**

Printer Interface

◆ CompuScan, Inc. will demonstrate the Wang LaserBridge Laser Printer Interface that enables VS and OIS systems users to link up with non-Wang desktop



laser printers from Hewlett Packard, Xerox or any laser printer that utilizes HP Emulation. Device lets the system

think that there is a band, daisywheel or Wang laser printer in operation. Three emulations are available: 5574, which works in DP and WP modes, and 6581 and LPS 8, which work in DP, WP and WP Plus modes. All functions are transparent to the user. Also allows users to include multiple fonts in their documents, while Wang WP permits the use of only two. **For More Information Circle No. 315.**

Expense Logger

◆ Danyl Corp. will show the Expense Logger disbursements recovery system for the automated office. This transaction terminal connects to a copier and accounts for all copies produced. Also records other billable disbursement expenses from the same terminal. Operates



as a stand-alone storage terminal and does not require the dedicated uses of a PC. Up to three units can be wired together to provide automatic collection of data and its conversion into a format needed to interface with most PC-based time and billing packages. Optional report generator software provides user and account code detail reports, as well as a posting summary by account code. **For More Information Circle No. 304.**

High Security Shredder

◆ Datatech Enterprises, Inc. will exhibit the Model 007/16S high-security shredder that is claimed to meet the stiffest security requirements worldwide for destruction of highly classified documents. Cross-cut particles method shreds standard sheets of paper into 10,000 pieces in seconds. Features a 16"

throat opening cutting system which can handle continuous computer print-out forms without folding over. Has a key



operator switch for forward and reverse. Unit automatically shuts off when bag is full. **Circle No. 312.**

Call-Processing System

◆ Dytel Corp. will display the Automated Attendant Exchange, the heart of a family of call-processing systems that provides call-handling automation and integration. Primary function is to solve incoming call answering delays by responding within two rings, and to enhance office productivity by reducing



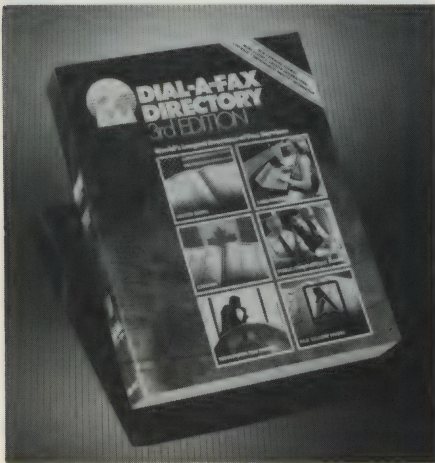
nonproductive, repetitive tasks of the switchboard operator. Allows incoming calls to reach their desired extension without operator assistance by prompting the caller to dial the desired extension, or to wait for a receptionist. In addition, system supervises incoming calls by providing routing alternatives if a line is busy or does not respond. **For More Information Circle No. 313.**

(Continued on page 46)

On Display at FOSE '89

Facsimile Directory

◆ Dial-A-Fax Directories Corp. will show the Fax Phone Book, a printed directory that indicates who has fax machines and how they can be reached. Access is alphabetically by state in the U.S. and by province in Canada. A public fax service section identifies units in



hotels, airports, print shops and other specialized locations. Dial-A-Fax Yellow Pages direct fax owners and users to dealers in their area who rent, lease, sell and service fax machines and supplies. Also provides access to U.S. government fax phone numbers indicated alphabetically by state and department, and offers toll-free information assistance to directory purchasers. **For More Information Circle No. 325.**

Networked Management System

◆ Eastman Kodak Co. will present the KIMS system 4000, a networked electronic document management system

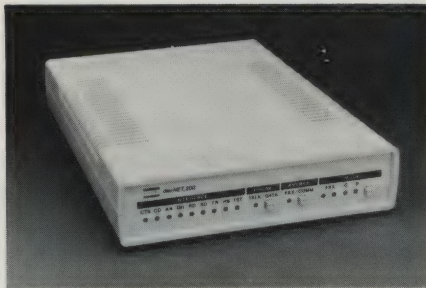


that stores images on 5¼" optical disks and allows distribution of images among PC users. Allows users to group a series

of image terminals, or integrate a combination of image terminals and standard PCs. Users will also be able to access index data and request document prints from either type of terminal. **For More Information Circle No. 303.**

Fax Modem

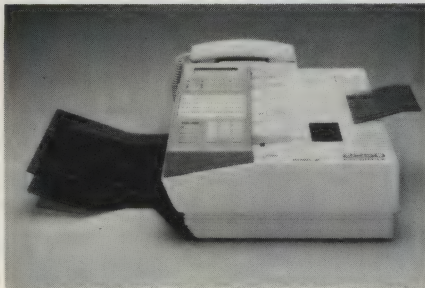
◆ Fujitsu Imaging Systems of America, Inc. will display the dexNET 200 Fax Modem that is compatible with a variety of operating systems, including UNIX. This external fax link and 2400 bps data-communications modem allows the user



to transmit documents from PC to PC or from a PC to a stand-alone fax. Operates with any type of serial communications device (RS-232-C interface) that can communicate in ASCII, including virtually all PCs. Also functions as a Hayes AT-compatible 300/1200/2400 bps industry-standard data modem with five-page buffer. **For More Information Circle No. 305.**

Mid-Range Fax

◆ Harris/3M Document Products, Inc. will demonstrate the mid-range Models 2225 and 2250 facsimile machines that



feature built-in telephone handsets, 16-shade gray scale, closed user group function to restrict usage and 100 location

autodial. Model 2250 adds a 256K memory, CCITT error-correction, battery-powered backup and RS-232 digital port. Firm will also introduce a Segment IV addition to its copier line. **For More Information Circle No. 316.**

Conversion System

◆ Interpreter, Inc. will display the Smart Kid desktop conversion system that facilitates the error-free exchange of



documents between incompatible dedicated word processors, the Apple Macintosh and PC-based word processing software. Diskette-based conversion software is matched to user needs. System also operates as a shared resource on the Apple Talk network. **For More Information Circle No. 306.**

Economical Copier

◆ Konica Business Machines U.S.A., Inc. will display the Model 4090 copier that is designed for use in a paper-inten-



sive environment predominantly using 8½" x 11" paper. Features a multi-sheet bypass and large document handler that

will accommodate paper sizes up to 11" x 17". Automatic document feeder runs at 30 cpm. Has a 1000-sheet large capacity tray. **For More Information Circle No. 328.**

Modular Work Station

◆ MicroComputer Accessories, Inc. will show the WorkManager line of modular computer work station furniture it claims combines the best features of existing economically priced computer



furniture with esthetic appeal of more expensive modular systems. Lightweight structural components are made of steel-reinforced, scratch and chip-resistant Resinite composite. Gray in color, basic system components are two work station desks. **For More Information Circle No. 317.**

Heavy-Duty Fax

◆ Minolta Corp. will exhibit MinoltaFax Models 761 and 781 heavy-duty facsimile machines that offer nine-second-per-page transmission and numerous sophisticated features. Model 761



offers polling, confirmation and activity reports, mailbox transmission, password transmission, automatic speed dial to 100 locations, including 12 one-touch, redialing, and transmission reservation and delay. Model 781 has 1 MB of memory, mailbox transmission/reception, forwarding, broadcast, transfer, multiple delayed transmission, and the ability to reproduce up to 50 copies of a document. **For More Information Circle No. 301.**

High-Volume Fax

◆ Murata Business Systems, Inc. will display the Model F-50 high-speed, high-volume facsimile machine that combines standard functions with a number of advanced features. Has 1 megabyte of memory and can store up



to 64 pages. Offers 2 megabyte and 4 megabyte versions, which can store up to 128 and 256 pages respectively. Operators can automatically transmit a document to up to 126 locations by entering one command, with sequential broadcasting. Relay broadcasting permits operators to send a document to more than 15,000 locations with a single command. **For More Information Circle No. 311.**

"I get some of my best ideas in showers."



Record your thoughts anywhere with Lanier's microcassette Pocket Protege.[®] Lanier has time-saving dictation units for your office. And the latest digital systems for small, medium and large companies. All backed by Lanier, the most experienced company in the business with 300 offices nationwide. Call Lanier right away. Because when it comes to getting great ideas, when it rains, sometimes it pours.

LANIER
VOICE PRODUCTS
The voice of experience.

Send me more information on:

_____ Dictation _____ LanierFax
_____ Business telephone systems

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____

STATE _____

ZIP _____

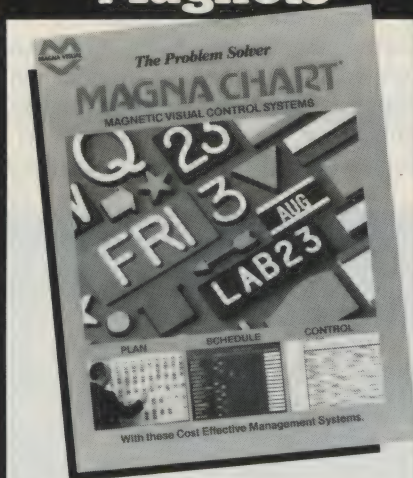
PHONE _____

Mail to: Lanier, P.O. Box 3064,
Cedar Rapids, Iowa 52406-9958.
Or call 1-800-241-1706.

In Georgia, call collect 404-321-1244.

OF-4

Control Board Magnets



Hundreds of Varieties - 10 colors

There's a Magna Visual magnet to make your visual control system function more efficiently—and look better—no matter what kind of magnetic board you have.

New 25th Anniversary
"TOTAL SOURCE CATALOG"
Call for your FREE copy today.

800-622-6273



MAGNA VISUAL, INC.

9402 Watson Rd., St. Louis, MO 63126
In Missouri: 314-843-9000

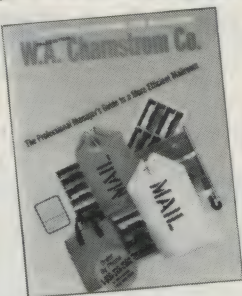
Circle Reader Service Card No. 401

MAILROOM EQUIPMENT CATALOG

FREE

Complete full-color illustrated catalog includes:

- Mail Carts
- Sorting Centers
- Sorting Tables
- Modular Units
- Slant Sorters
- Workstations
- Mailbags
- Mailroom Accessories



W.A. America's most complete source for mailroom furniture and supplies

CHARNSTROM

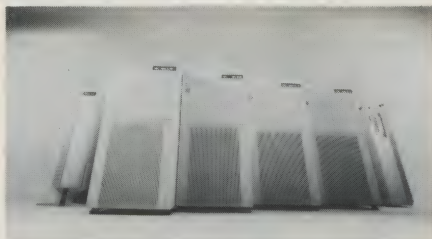
10901 Hampshire Ave. So.
Minneapolis, MN 55438

TOLL FREE: **(800) 328-2962**

Circle Reader Service Card No. 402

Multiuser System

◆ NEC Information Systems, Inc. will display the Astra XL300 computer that is a high-end Motorola MC68030-based addition to its Astra family of multiuser



systems. Designed for up to 64 users in departmental and business computing environments, system can be used for general accounting as well as applications within such vertical markets as telephony, health care and government. **For More Information Circle No. 323.**

Versatile Copier

◆ Océ-Business Systems, Inc. will show its Model 1750 copier-duplicator with patented master belt imaging system and recirculating document feeder

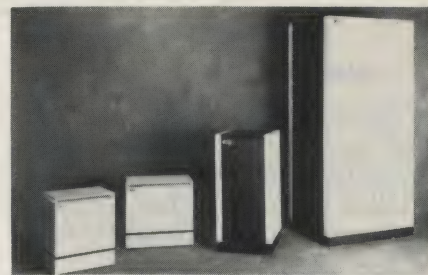


technology that produces 45 stapled copies a minute. Also features a finisher for automatic on and off-line stapling of up to 35 copies in a single report. Has a 90,000 copy toner reservoir. **For More Information Circle No. 326.**

Information Collection Tool

◆ Octel Communications Corp. will offer AspenForms software for the firm's Aspen voice processing systems. Package is an alternative to information collection through paper forms and phone conversations. Provides organizations with an automated method of gathering specific information from employees, customers and the public. Callers can

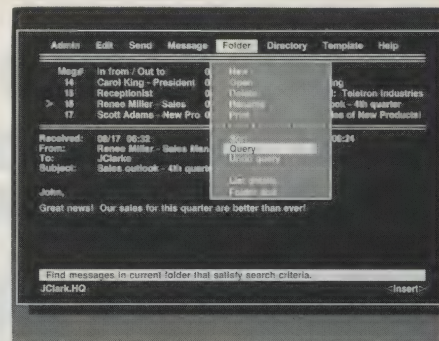
listen to questions and leave answers on the system from any telephone 24 hours a day. Voice AspenForms is available as part of firm's Advanced Features Package II, which also includes Informa-



tion Center Mailboxes (audiotex) and Enhanced Call Processing (menu-driven call routing) software. DTMF (Touch-tone) AspenForms will be available beginning this month. **For More Information Circle No. 314.**

Communications System

◆ Oracle Corp. will demonstrate Oracle Mail, an enterprise-wide office information and communication system. This portable distributed electronic mail system lets users communicate transparently across heterogeneous computers



and networks. Transmits simple notes between users and allows them to send objects such as spreadsheets and images. Reduces administrative costs through automatic distributed directory and configuration management, and lowers hardware and network costs through optimized message storage and transmission. **Circle No. 307.**

Large Volume Mailer

◆ Pitney Bowes will demonstrate its Model R150 Rapidmailer mailing machine that can process 15,000 pieces per hour, making it useful for console inserter users. System can process envelopes as quickly as the fastest console inserter can generate them. Can be used

A hand holding a lit matchstick against a dark background. The flame is bright yellow and orange, providing a source of light in the darkness. The hand is positioned in the lower right, with the matchstick held vertically.

Your search for excellence is over!®

Uniforce Temporary Personnel...

...like a flame in the darkness, sheds light on your search for excellence by providing payroll-cost controls, staffing flexibility and increased productivity.

Across America, individually owned Uniforce offices will brighten your day by helping you with the planned use of performance-guaranteed, temporary personnel in hundreds of skill categories.

Uniforce personnel professionals are waiting for your call to help you custom match our quality temps to your exact needs...one or one hundred for a day, a week, a month or longer. Excellence at a moment's notice!

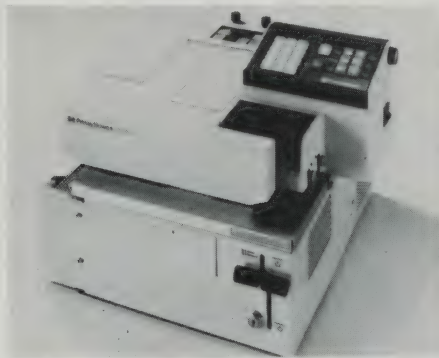
uniforce®
temporary services

Franchises available in select areas for qualified candidates. For information call (516) 437-3300.

Circle Reader Service Card No. 268

© Uniforce 1986

with non-Pitney Bowes inserters as well as with the company's 3100 and 8300



series lines. Interfaces with firm's Postage-by-Phone system 6500 and 5300

series postage meters. Can process five million pieces between scheduled routine maintenance calls. Handles envelope sizes up to 9" x 12", with inserts up to 3/8" thick. **For More Information Circle No. 319.**

Surge Protectors

◆ Panamax Corp. will display the TeleMAX series of surge protectors that protect electrical and telecommunications lines against transient surges and noise. TeleMAX-1 (shown), TeleMAX-4 and SuperMAX all offer a lifetime warranty on both the protectors and any equipment correctly connected to them. Each

comes with lights to indicate proper operation of the protection circuitry, and



all are U/L listed and CSA certified. **For More Information Circle No. 322.**

**103 Fonts
and Symbol Sets!**



BUY ONE. GET 24 FREE.

Buy all of these cartridges separately and you would spend over \$5500. The "25 Cartridges in One!" has fonts for your LaserJet Series II printer.

A single cartridge with **103 fonts** and symbol sets, 13 typefaces, and 11 sizes of type for about the cost of one cartridge.

Buy the only cartridge you need for every application. Full support included for the new high-performance word processing packages. Excellent for use with WordPerfect® 4.2 and 5.0, WordStar®, Word®, MultiMate®, Samna™, XyWrite™, Lotus 1-2-3®, Excel®, PageMaker™ and Windows™.

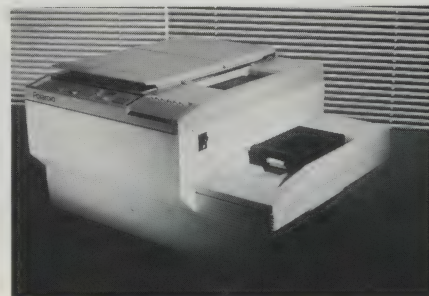
PACIFIC
DATA PRODUCTS

6404 Nancy Ridge Drive • San Diego, CA 92121
(619) 552-0880 • Fax: (619) 552-0889
Telex: 9102507881 PAC DATA

Circle Reader Service Card No. 403

Desktop Slide Maker

◆ Polaroid Corp. will demonstrate the Bravo Slide Maker that can produce full-color instant slides, prints and overheads from any flat document or small three-dimensional object. Unit looks and func-



tions like a conventional desktop office copier but requires no photographic training or experience to use. Black-and-white materials can be converted into instant blue-on-white slides or overheads; instant black-and-white or white-and-black slides can be projected as is or tinted with gels. **For More Information Circle No. 302.**

**For more product previews at the
Federal Office Systems Exposition,
please turn to page 53.**



Now it's seven years in a row that Kodak copiers have won awards for reliability, service, copy quality and overall satisfaction. That's more than luck.

An independent research organization has been surveying copier users, and giving awards to the winning copiers, for seven years now. In the four categories listed above, one or more Kodak copiers, or Kodak as a company, have won an award in every category, every year. That's a record so good that there isn't even a second place. We think you'll feel the same way about our copiers.



*Call 1 800 44KODAK
(1 800 445-6325) Ext. 665.*

**Leading technology:
The Kodak copier advantage.**

ANOTHER IMPRESSIVE DISPLAY BY KODAK

The new vision of Kodak

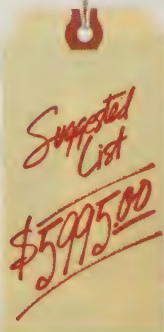


Introducing the FAX1000L from Ricoh. A full-featured machine made specifically for businesses that need plain paper technology without the plain paper price.

By incorporating laser printing technology with our innovative "super smoothing" process, we can produce images at near 400x400 resolution on plain bond paper in 30 seconds. And in addition to the excellent print

quality, it includes many luxury features you wouldn't expect to find on such an affordable plain paper machine. Like a 114-number auto dialer, 60 page memory, and auto page retransmit. And when the FAX1000L is equipped with the

The biggest technological advance on our new plain paper fax is made out of cardboard and string.



optional 500 sheet paper feed unit, it automatically selects the appropriate paper size. And not only can the FAX1000L fit on any desk or counter, an optional storage cabinet is available for stand alone use. So if you're looking for a fax that comes with everything you thought you couldn't afford, call **1-800-524-0864** (in New Jersey, **1-201-882-8811**.) Or send us the coupon below.

Ricoh Corporation CN-4626 Trenton, N.J. 08650
In Canada: Ricoh Corporation (Canada) Ltd.

Name/Title _____

Company _____

Address _____ City _____

State _____ Zip _____

Telephone _____

02-B-K

RICOH

The first name in digital facsimile.

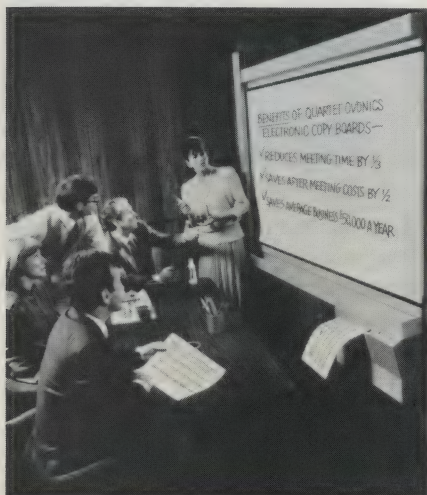
Circle Reader Service Card No. 462

FOSE

(Continued from page 50)

Electronic Copyboard

◆ Quartet Ovonic, Inc. will show its Electronic Copyboard that combines a proprietary sensor technology with an erasable porcelain enamel-on-steel white



board. This allows the user to instantly produce letter or full-size copies of anything written on or attached to the board's surface. Electronic scanner feeds digital signals into a copier capable of producing up to 99 copies. Board can then be erased and used again. **For More Information Circle No. 324.**

Plain-Paper Fax

◆ Ricoh Corp. will exhibit the FAX1000L plain-paper facsimile machine that produces high-quality prints suitable for use as working documents



and permanent file copies. Unit has a resolution of 200 x 200 dpi that gives the appearance of 400 x 400 dpi through

the use of a super-smoothing technique in image generation. Standard-density documents are transmitted at 15 seconds per page. Offers sequential broadcasting, confidential message storage and substitute reception of incoming documents to memory if paper runs out. Has 60-page memory. **For More Information Circle No. 299.**

Automatic Copy/Duplicator

◆ RISO, Inc. will display the Riso-graph 3500 automatic copy/duplicator that produces high-volume copies at speeds up to 120 per minute with the convenience of a traditional copier. Text, line illustrations and full-tone pho-



tographs can be produced in the operator's choice of four colors, along with black. System creates an intermediate, or master, for each original. Three reduction modes (93%, 75%, 64%), two-up feature, variable speed control from 60-120 cpm, automatic document feeder, touch-pad data entry and built-in diagnostics are some of the standard features. **For More Information Circle No. 318.**

Windows-Based WP

◆ Samna Corp. will exhibit Ami, a Microsoft Windows-based word processor whose ease of use, WYSIWYG screen display and style sheet formatting can speed the process of creating sophisticated business documents. Comes complete with a run-time version of Windows. Users can choose between two document editing modes to meet their specific requirements: draft mode provides a text-only display of the document being edited for times when the emphasis is on content, and the actual for-

GET OUT OF THE DARK.

The Consumer Information Catalog will enlighten you with over 200 federal consumer-oriented publications. Many are free and all are helpful. Get your free copy by writing—

**Consumer Information Center
Dept. TD, Pueblo, Colorado 81009**

U.S. General Services Administration

THE STATKLEER™ COMPUTER CLOTH IS MUCH MORE THAN A CLOTH FOR COMPUTERS

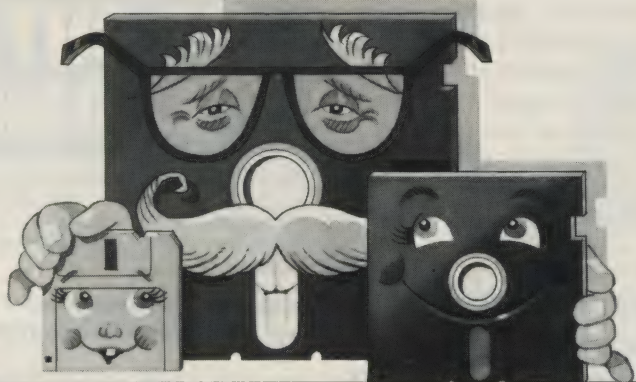


EVANS STATKLEER™ computer cloth has been treated with a special chemical to more effectively clean dust and static from your CRT screen. **STATKLEER** lasts 4 to 6 months and wipes away static electricity and dust to allow you to see better and work more efficiently. Try it today, because computers need special treatment too.

SEE YOUR LOCAL OFFICE SUPPLY DEALER
OR CALL 1-800-368-3061 FOR ADDITIONAL
INFORMATION.

EVANS Specialty Co., Inc.
P.O. Box 24189 Richmond, VA 23224

Circle Reader Service Card No. 404



HOW MANY TIMES CAN YOU FIT 8 INTO 5¼ OR 3½?

As many times as you like. With the CompuScan® Disk Reader, converting documents from 8" dedicated word processor disks into PC word processing formats is easy. All text and format codes are automatically converted to your system's requirements.

The Disk Reader converts 8" disks from Wang®, Xerox®, CPT®, IBM® Displaywriter®, IBM 5520® and IBM OS6® dedicated word processors. And it supports many of the most popular PC word processing packages. For more information, contact: CompuScan Inc., 300 Broadacres Drive, Bloomfield, NJ 07003. Phone: (201) 338-5000.

CompuScan is a registered trademark of CompuScan, Inc. Wang is a registered trademark of Wang Laboratories, Inc. Xerox is a registered trademark of Xerox Corporation. CPT is a registered trademark of CPT Corporation. IBM, IBM Displaywriter, IBM 5520 and IBM OS6 are registered trademarks of International Business Machines Corporation.



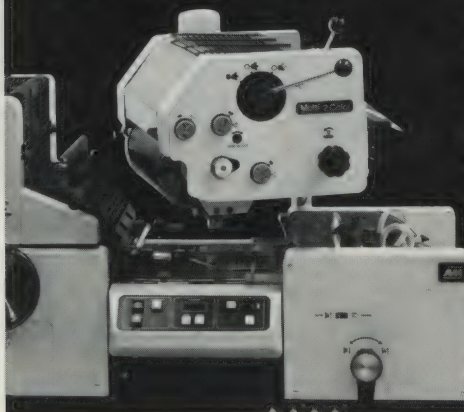
CompuScan® INC.

Circle Reader Service Card No. 405

Meet the two color challenge

There's no faster way to register or run than the Townsend T-51®

The Swing-Away® is available for the Multi 1650 and 1218 duplicators. And there's a T-51 available for virtually every offset duplicator.



No doubt about it. You'll register any two color job faster when you're running two color, one pass printing on your offset duplicator equipped with a T-51.*

In fact, because you register the second color right on the parent press' blanket, you'll be ready to deliver even the first sheet in perfect register. No time or paper lost on registration "try sheets"... and no lost drying time between color runs either. And **that's** the way to meet the two color challenge... deliver quality two color work in one color time.

And the Swing-Away® T-51* makes printing on any Multigraphics duplicator even more accessible. The T-Head® can swing completely out of the way for unobstructed access when running single color work.

The Townsend T-51* lowers costs and gets more work out the door every day. Townsend makes it happen. Call or write and we'll show you how.

T-51® TOWNSEND INDUSTRIES
P.O. Box 97, Altoona, Iowa 50009
1-800/247-2262

Circle Reader Service Card No. 406

mat may be distracting; layout mode permits the document to be seen exactly as it will be printed and the text is formatted



as it is edited or entered. Firm will also demonstrate Samna PLUS IV office automation software for UNIX. **For More Information Circle No. 309.**

Color Copier

◆ Savin Corp. will exhibit the Prism I console copier that runs at 7½ cpm in full color. Accepts single sheets, books and overhead transparency originals up to 11" x 17". Makes up to 99 copies a run via two 250-sheet cassettes and a single-sheet bypass. Offers two preset reduction and two preset enlargement



modes, and zoom reduction and enlargement from 64%–154% in 1% increments. Includes automatic exposure control, nine-step manual exposure adjustment, and nine-step manual contrast adjustment for black, cyan, yellow and magenta. Also produces 11 red, green or blue copies a minute, and 22 yellow, magenta, cyan or black copies a minute. **For More Information Circle No. 321.**

Laser Optic Filing

◆ TAB Products, Inc. Co. will present its Series 2000 Laser Optic Filing System in an expanded version that incorpo-

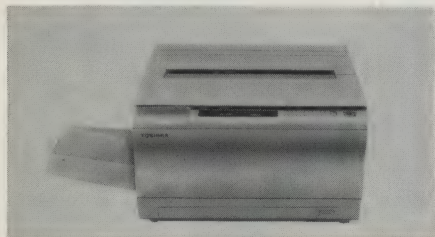
rates 12" optical jukebox, retrieval stations and scan stations running on an Ethernet network. Provides 100% filing availability, with files permanently stored on optical disks. Video screen displays actual page size with high resolu-



tion. Laser printer generates high-quality hard copies. Two models, the Series 2000 LD and 2000 SD, are available. Each offers 2.2 second-per-page scanner, multiple scan resolutions, combined flatbed and auto sheet-feed capability, and 19" high resolution landscape display. **For More Information Circle No. 327.**

Compact Copier

◆ Toshiba America, Inc. will display the Model BD-3810 desktop office copier that combines the advantages of a fixed platen copying surface with a front-loading paper cassette. Clam-shell design measures 20 $\frac{1}{8}$ " x 11 $\frac{7}{8}$ " x 20", and runs at 12 cpm. The 250-sheet adjustable paper feed cassette accepts

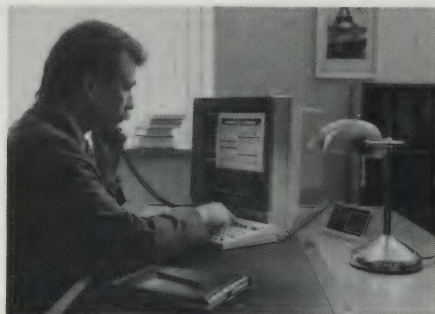


sheets from statement size up to computer size. Single-sheet bypass allows for copying of odd-sized sheets and various paper weights from 17-34 lbs. Also utilizes interchangeable color cartridges which offer users flexibility in highlighting their copying with color. Choice of cartridges includes standard black, red, blue and brown. **For More Information Circle No. 308.**

Storage & Retrieval System

◆ Wang Laboratories, Inc. will demonstrate its Integrated Image Systems that provide tools for capturing, storing, re-

trieving and sharing the 95% of information based on paper in the workplace, and integrate it into the mainstream com-



puter environment. Company will also show the Freestyle personal computing

system that allows PCs to accept handwritten notes and voice messages, combine them with electronic pages of data displayed on the screen, and send the entire packet to other Freestyle systems in an information network. **For More Information Circle No. 300.**

Image Control Software

◆ ZSoft Corp. will show the PC Paintbrush Plus for Windows software product for use with image scanners and the Microsoft Windows operating environment. With on-line help and new user interface, package makes it easier to control the process. **Circle No. 310.**

Convert

WordPerfect[®]
and **WANG**

Archive-Link — Converts between WordPerfect and Wang 5 $\frac{1}{4}$ " Archive disk. Software for your PC.

WordPerfect version 4.2 and 5.0 as well as other popular PC word processing formats are supported.

W-Link — Converts between WordPerfect and Wang PC documents. Software for your PC.

Supports WordPerfect version 4.2, 5.0 and other popular PC word processing formats.

VsCom — Wang VS 2110 terminal emulation. Document/file conversion and transfer between WordPerfect and Wang VS.

VsCom also includes one step transfer of WordPerfect documents and files in and out of Wang Office Mail Boxes.

VsCom supports conversion and transfer of WordPerfect versions 5.0 and 4.2.

Other popular PC word processing formats can be converted and transferred with VsCom.

WordPerfect[®]
and

MULTIMATE Professional Write
WordStar **WANG PC**
ASCII Microsoft Word
DisplayWrite OfficeWriter

Word-Link — Software that converts WordPerfect documents from and to other popular PC word processing packages.

Advanced conversion techniques give the cleanest, most editable documents available. Document features converted include format information, margin changes, tabstops, word wrap, various types of tabs, underscoring, bolding, superscript, subscript, etc.

Supports WordPerfect version 5.0 and 4.2. Word-Link also supports OfficeWriter 6.0 and Professional Write 1.0 and 2.0.

Word-Link converts multiple documents in a single session, simply by selecting from a list displayed on your screen.

Make the WordPerfect Connection your way!

M/H GROUP

222 West Adams Street • Chicago, Illinois 60606

PHONE: 312.443.1222 • FAX: 312.443.1377 • TELEX: 650 3306745 • MCI MAIL: 3306745

PAPER SHREDDERS BY ALLEGHENY

Industry leaders since 1968

More than 15,000 companies—including most of the Fortune 500—rely on **Allegheny paper shredders** for cost-effective destruction of their confidential materials.

Our shredders are American-made, and are built of the highest quality components for years of trouble-free operation.

With our wide range of office models and complete line of high volume conveyor-fed models, **there's an Allegheny shredder to meet your needs.**

Call or write for our free catalog.

Allegheny Paper Shredders Corporation

Old William Penn Highway East

P.O. Drawer E

Delmont, PA 15626

(800) 245-2497

In Pennsylvania:

(800) 442-8056 or (412) 468-4300



STRONGEST WARRANTY IN THE INDUSTRY

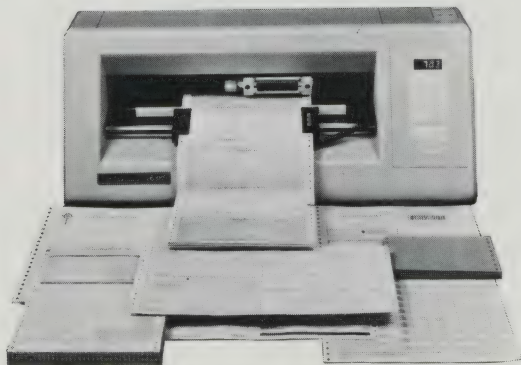
Allegheny shredders are covered for up to **3 years**, parts and labor—up to **10 years** on the cutting assembly. Annual warranty extensions are also available.

© Copyright 1988 Allegheny Paper Shredders Corporation

■ **Personalized service** ■ **Factory-direct prices** ■ **Free 2-week trial on J-series office shredders**

Circle Reader Service Card No. 437

New Do-It-All Signer



**Swingline Programmable Electronic Signer
From Martin Yale**

Signs Any Document From 2" to 14"

You get computerized accuracy and versatility for signature placement on any size document. For further information contact Martin Yale Industries, Inc., 500 North Spaulding Avenue, Chicago, Illinois 60624.

- Pre-program micro-processor controlled
- Full financial security
- Easy-touch pad operation
- High-speed imprinting
- Tractor feed

Call (312) 826-4444 or FAX (312) 826-7271

Swingline®

Swingline® is a registered trademark of Swingline, Inc.

**Business Equipment
From MARTIN YALE**

Circle Reader Service Card No. 408

Focus

(Continued from page 24)

imizer, but allows several user defined fields. It has been around longer than any of the other three, and enjoys a large user base. Telemagic has good import and export capabilities if your data is in dBase format.

Act, the most expensive of the lot, is also the most powerful. Unlike the other three, it can track billable hours and provides a superior call-back tracking system by linking the "next-contact" field with the call-back list.

For more information on the above, here are manufacturers who can help:

The project managers:

InstaPlan—InstaPlan Corp.,
655 Redwood Highway, Suite 311,
Mill Valley, Calif. 94941.

Who-What-When—

Chronos Software Inc.,
1500 16th St., Suite 100,
San Francisco, Calif. 94103.

Primetime—Primetime Software Inc.,
P.O. Box 27967,
Santa Ana, Calif. 92799.

Action Tracker—Information Research Corp.,
2421 Ivy Road,
Charlottesville, Va. 22901.

The people managers:

Contact Plus—

E. Trujillo Software,
P.O. Box 3992,
Albuquerque, N.M. 87190.

Telemagic—Remote Control Inc.,
514 Via D La Valle, Suite 306,
Solana Beach, Calif. 92075.

Act—Conductor Software Inc.,
9208 Royal Lane,
Irving, Texas 75063.

Maximizer—Pinetree Software Inc.,
8100 Granville Ave.,
Richmond, B.C., Canada **TO**

CLAUDE F. WHITMYER is a partner in the San Francisco consulting firm, Research & Planning for Business. He also teaches, writes, and lectures on software.



A good secretary shouldn't mess around.

Clean up your desk by replacing all your old fashioned rubber stamps with Xstampers.

Xstampers never need ink pads. The ink's on the inside where it ought to be. And you can

customize them with any message, address, signature, or logo you want.

Xstampers are available from your favorite office supplier. Why mess around with anything else?

Circle Reader Service Card No. 463



X Custom made
stamper
The greatest thing since rubber stamps™

Blue Cross Meets Client Needs With Innovations

As health care escalates beyond the standard cost of living, this provider takes action to control it.

By Scott W. Cullen

With its philosophy of "You don't make progress by sitting still," Blue Cross of Western Pennsylvania has a strong commitment to customer service, growth and financial stability. The company meets this commitment by being an innovator in the products it offers and the technology it uses.

The Pittsburgh-based organization was founded in 1937 and is among the top Blue Cross corporations in the country. It has over 2000 employees servicing more than 2.5 million customers.

New Ventures Begun

The last five years have seen the company embark on a series of new ventures. Products and services have been expanded or adapted to meet new market demands, new companies have been acquired or affiliated, and new administrative, operating and information systems have been designed and implemented. "Our mission is to provide quality and affordable health care and employee benefits to the community while remaining financially solvent," says Charles Southworth, vice president/chief information officer.

According to Mr. Southworth, the strategy to broaden interests was spurred by external competition. As new competitors entered the market during the last ten years, health care costs rose to second in the gross national product, next to national defense spending.

"As health care escalated beyond the traditional cost of living, we knew we had to take some definitive action to contain those costs and meet our corporate mission," Mr. Southworth remarked. This decision became even more practical when the Tax Reform Act of 1986 made the firm subject to federal income tax despite its non-profit status.

These events led to the creation of the

Family of Service Companies. Today, the companies include Benefit Resource Management Group, Consumer Service Casualty Insurance Co., Healthcare Affiliated Services, Health Education Center, Health Promotion Services, Health Related Services, and Pen-Wel. Each operates under the Diversified Benefit Services, Inc. umbrella. Other mem-



Fifth Avenue Place, latest addition to the Pittsburgh skyline, is headquarters of Blue Cross of Western Pennsylvania.

bers of the family include Keystone Health Plan West, Penn Western Agency, Pittsburgh Research Institute, Standard Property Corp., and the Western Pennsylvania Caring Foundation.

While expansion has made the organization financially stable, innovations have made it a leader in the health care and benefits administration industry.

When the Western Pennsylvania economy was leveled by the decline of

its steel industry, Blue Cross provided the nation's first unemployment health-care coverage program. Called the Emergency Health Care Program for the Unemployed, it offered premiums 40% lower than the cost of regular coverage. Launched in April 1983, enrollment had reached 17,000 by the end of that year.

The Caring Program for Children was created in 1985 to provide primary health care benefits to children whose families could not afford the coverage and who were also ineligible to participate in publicly-funded programs. To date, the program has serviced the needs of over 9500 children and has served as a model for a nation-wide response to meet the needs of the 12 million uninsured children in the U.S.

Aim: Faster Service

To provide current accounts and prospective customers with faster service, the firm developed the Commercial Sales Rate Request System, one that automates the rate request process to allow sales representatives at branch office locations to generate product quotes in four days instead of several weeks. "The system provides a competitive edge for our corporation," John Lezo, senior director of information services, explained. The system allows rate requests to be transmitted electronically from branch offices to the actuarial department, eliminating the need for completing and duplicating paper forms. Rate information is then prepared and returned electronically to district sales.

Simplicity Is a Key

One of the keys to the system is its simplicity. Computer screens represent one universal form for Blue Cross, Blue Shield and Major Medical programs. Supplemental programs such as dental and vision, along with rate requests for the company's subsidiaries, are being added. The system is so successful that it is being marketed to other Blue Cross and Blue Shield plans.

Another innovation is Summit work measurement software, which measures individual and departmental productivity. It operates on IBM mainframe and DEC minicomputers, and provides on-line, menu-driven data entry. Designed to be a management planning and reporting tool, it features performance reporting, quality reporting, staffing analysis, backlog reporting and work-load analysis and planning.

As a way to control rising medical costs and to streamline health care programs, an interactive videodisk system called The Caring Touch was introduced. Software and screens were developed by Magnus Communications, Inc., Vancouver, Canada. Core of the system is IBM's InfoWindow, a computer-based system that is accessed by touching the computer screen in response to symbols and prompts programmed into the unit. Help and prompt screens guide members through claims processing. Customers who use the system to file an electronic claim can expect payment in four to five days, instead of the three weeks it usually takes to process claim forms.

Caring Touch technology is currently located in a major Pittsburgh supermarket and the customer service center at Blue Cross corporate headquarters.

Claims in the Millions

The organization processes seven million claims a year and handles one million transactions a day. Effectively managing this information along with data from its subsidiaries and affiliates is critical to success. "The company is built around information, and providing timely access to that information to all members of the corporation is one of our biggest challenges," says Mr. Lezo.

The corporation primarily operates from two locations, Fifth Avenue Place, a 31-story headquarters in downtown Pittsburgh, and a data center located five minutes away in suburban Greentree. The 24,000-sq.-ft. data center operates 24 hours a day, 365 days a year. Both locations reflect a commitment to technology. Indeed, the myriad of equipment includes IBM mainframes, DEC Vaxes, Data General and PRIME minicomputers, Wang word processors, and personal computers from IBM, Apple, Sun and Leading Edge.

"Where appropriate, we aim to maximize the use of technology and minimize the amount of human intervention," Mr. Lezo says, describing the company's emphasis on productivity. "This use of technology enables us to expand while striving to be the most cost-effective provider of services." An example of this is the data center's computer room, which requires minimal support and often runs in a "lights out" environment, with no one in the room.

Integral to operations is the data center's command center. "Everything that happens in this building is controlled

from this room," Bill Skweres, operations manager, explained. Using the Liebert Site Scan System, an employee monitors everything critical to the operation of the facility. The software-based system checks the temperature of the water-cooled central processing units, indicates the amount of power a CPU is drawing and identifies which units are drawing too much. It also monitors the air-conditioning system and security conditions. After hours, the building is monitored on a personal computer from the station engineer's home.

Netview software from IBM monitors the vast computer network of over 4000 local and national terminals. An automatic scheduling system monitors and releases jobs, and also tracks work that is in progress.

Two IBM 3090 Model 300E mainframes maintain and run all products and jobs, communicate with other Blue Cross Plans, handle inquiries, and support the Corporate headquarters computer network. Chosen because they provide increased throughput and are highly reliable, these units are also on-line with all participating area hospitals and many of the company's accounts. Two Paradyne 8860 channel extenders transfer information from the data center to printers at corporate headquarters. "Nearly all printing takes place downtown so we don't use the time and expense to transport the paper," Mr. Skweres said.

Nearly 800 miles of paper are produced each month at corporate headquarters on two impact and two laser printers. On-line information is stored and accessed from 42 direct-access storage devices. These triple-density units have 300GB of disk storage.

Data Stored on Tapes

The bulk of the company's data is stored on cartridge tapes. Over 30,000 cartridges are stored in the library, with some tapes being updated daily. All are backed up once a week to tape and delivered to an outside location for use in the event of a disaster. In addition, the center uses nine reel tape drives to service clients and hospitals using them.

Six 3725 telecommunication controllers facilitate communications between the data center, corporate headquarters and outside locations. Complementing the controllers is Bell Telephone's Universal Information Transport System, an in-house wiring system for data phones.

Along with its commitment to technology, the firm remains dedicated to its customers. "Our mission has not changed in 50 years," Mr. Southworth said. "We want to provide quality, affordable health care and complementary products to all segments of the community we serve." **TO**

SCOTT W. CULLEN is assistant editor of THE OFFICE Magazine.



Command center is hub of information processing network at headquarters of Blue Cross/Blue Shield of Western Pennsylvania, which has two million subscribers.

For your fax network, the NEFAX 400 is a brilliant addition.



For memory expansion, it's a simple addition.

The NEC NEFAX 400 is the first facsimile that lets *you* add memory in seconds. No technicians. No service calls. No downtime while the unit is back in the factory.

Simply insert an optional NEFAX memory card to expand the unit's standard 7 page memory to up to 46 pages. Add the second card for a total of up to 88 pages. You can upgrade one or all of the NEFAX 400 units in your network to two megabytes of memory instantly.

But that's just one of the memorable features. You'll also find sophisticated memory broadcasting and memory

reception. Serial broadcasting to up to 100 locations. Relay broadcast instruction to up to 1,000 locations. Transmission speeds in as fast as 15 seconds per page. Advanced 200x400 LPI resolution for sharpness and clarity. Even automatic CCITT Error Correction Mode. And you'll get NEC quality—your assurance of years of optimum performance.

To learn more about the remarkably affordable NEFAX 400, just call us at 1-800-STARFAX™ (In New York, call 516-753-7406). We'll be glad to demonstrate how we can brighten your network.

It's that simple.



Circle Reader Service Card No. 464

C&C Computers and Communications

© 1989 NEC America, Inc.

NEC

RIGHT or WRONG In Employee Relations

True-to-life employee grievances and how they were handled by management through impartial arbitration.

Can a company implement contract changes without first getting a union's approval?

What Happened:

During negotiations of the most recent contract, a union representative told management that employees were annoyed by many procedures and technicalities of the existing accident and hospitalization plan. Filling out forms, going for second or third opinions before surgery, and delays in getting reimbursement were among the complaints he cited. Management didn't respond to those points directly, but raised some observations of its own. "We're going to have to be more cost-conscious in the future," the chief of personnel said.

Conversation moved on to other items, and a new contract was arrived at without any change in the benefit plan. A few months later, management announced a number of procedural changes in how the plan would operate. The changes seemed to have more to do with

"cost-consciousness" than with concerns for the employees. It was obvious that management had been planning many changes without involving union representatives.

The response from the union was predictable, and an unfair labor practice charge was lodged with the National Labor Relations Board. Inevitably, there was delay before the board could consider the matter. Meanwhile, some new procedures were put into effect. Whether the employees actually lost anything by the changes was uncertain, but the union was determined to have them abolished because they were not the result of collective bargaining.

In accordance with its policy, the NLRB directed the parties to go to arbitration on the issue. Did the company violate the contract and the law by proceeding unilaterally with changes? If so, what should the remedy be?

At the hearing, management's defense against the refusal-to-bargain charge was that it had, in fact, bargained. "We talked about making changes in the welfare plan during negotiations and we didn't come to an agreement," the president of the company said. "We had to do something about costs, and the law does not require us to wait indefinitely for the union to agree."

Was Management:
RIGHT ☐ WRONG ☐

The Award: The trouble with management's case was that the parties to the negotiations had not really bargained to an impasse before the company took unilateral action. Thus in finding for the union, the arbitrator ordered the company to go back to the old procedures, reimburse any employees who had lost something by the new rules, and to begin real bargaining with an objective of reaching agreement.



BEACH'S
"COMMON SENSE"®
Expense Books
Vest Pocket / Weekly
Coat Pocket / Monthly
and



AUTOLOG

- Business use
- Personal use
- Charitable use

Document your expenses for company and tax purposes.

At Leading Stationers
or Call
BEACH PUBLISHING COMPANY
29551 Greenfield Road
Southfield, Michigan 48076
313-559-6123

Circle Reader Service Card No. 297

**One of the best ingredients
for your savings plan.**

**Take
Stock
in America.**



**100,000 +
FAX Numbers
— of —
U.S. Businesses
including
Names & Addresses**

- Quick reference
- Maximize FAX usefulness
- New advertising medium

**Only \$49.95 Postage Paid
Order Now!**

Entrepreneurs' Library TO-3
Box 17509, Fountain Hills, Az. 85269

☐ Please rush me a copy of the new Fax Directory. Enclosed is check or money order for \$49.95.

Name _____
Company _____
Address _____
City _____
State _____ Zip _____

Circle Reader Service Card No. 298

PAPER SHREDDERS



20 Models That Won't Shred Your Budget

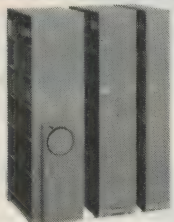
NEED TO SHRED 5 SHEETS OR 500?

- ★ 3 Year Warranty-All Parts, All Labor
- ★ 10 Year Cutter Warranty
- ★ 2 Week Free Trial
- ★ Factory-Direct Sales and Service

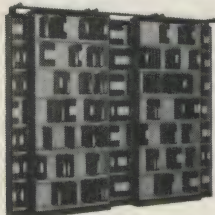
Ameri-Shred Corp.

P.O. Box 46130 ★ Monroeville, PA 15146
Call Toll-Free: (800) 634-8981 or (412) 823-4222

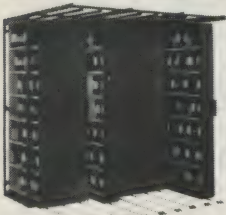
Circle Reader Service Card No. 409



• HIGH CAPACITY SYSTEM



• SUPER DENSITY SYSTEM



• PULL-OUT SYSTEM

Winsted®

space-saving tape or film MOVABLE STORAGE SYSTEMS

Organized, efficient storage for all types of film and videotape. Sliding cabinets move effortlessly on low-profile tracks for easy access and maximum storage capacity in limited space. Available in a variety of designs and sizes, with 5" to 36" depths, to suit your special storage needs. All steel construction.

For Free Full-color FULL LINE CATALOG
Write or call toll-free

800-447-2257

THE WINSTED CORPORATION

10901 Hampshire Ave. So. • Minneapolis, MN 55438
TELEX: 510-601-0887

FAX: 612-944-1546

Circle Reader Service Card No. 410

How does one distinguish between an employee and a partner in a lawsuit?

What Happened:

About ten years ago, a woman was hired by a nationally known firm of public accountants as a certified public accountant. She was given increased responsibilities over the nine years that followed, and was designated a general partner in the firm. She was then 47 years of age.

Nineteen months later, she was discharged for reasons, she complained, constituted violations of laws that forbid discrimination for reasons of sex or age.

What happened to cause her discharge was never made clear in court cases that followed because the preliminary



questions of jurisdiction had to be resolved. In short, the issue was whether a "general partner" was an "employee" within the meaning of those laws. The Equal Employment Opportunity Commission and the Federal District Court in Colorado said the woman was an employee because she was only one of 500 general partners and, in the "economic realities" of the situation, was subject to being fired by other general partners. Top management of the accounting firm appealed, which brought the matter before the Tenth Circuit Court of Appeals.

Was the Grievant:
RIGHT ☐ **WRONG** ☐

The Appeals Court Decision: The lower court was reversed. There were very few cases cited by the appellants, and they were distinguishable from this one on the facts. For example, the woman in this case had a "not insignificant" financial interest in the partnership. Although she functioned in many ways in a manner similar to employees of the firm, she participated in profits and losses; was exposed to liability for errors determined in lawsuits; had partial ownership and voting rights, and a position governed by a partnership agreement under partnership laws.

Must additional parental leave be given if a worker requests it?

What Happened:

When a union contract was negotiated for employees of a school system in an eastern state, the parties agreed that management "may grant" various types of unpaid leaves of absence, but that they "shall grant" parental leave after the birth of an employee's child. Furthermore, the mandatory leave might be for as much as 18 months, depending on the employee's wishes.

Under this clause, a school librarian asked for and was given the four-month leave she requested before her baby was born. Acting on the assumption that the librarian would



be back at work in four months, the school committee arranged to cover her job with temporary transfers, for it was impractical to hire someone for so short a time.

Toward the end of the four-month period, the librarian informed her supervisor that she intended to extend her parental leave, but management said no. "If you want more time off it can't be parental leave anymore," a personnel officer told her. "You can ask for some other kind of leave, but in that case we don't have to grant it. We cannot keep filling your job with substitutes."

The union insisted that the mandatory language of the parental leave clause gave management no option but to extend the leave to a maximum of 18 months.

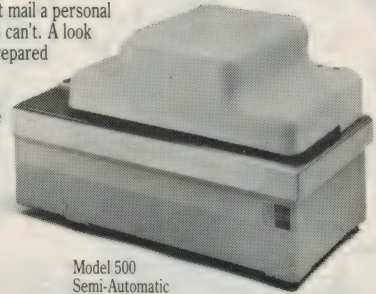
Was the Union:
RIGHT ☐ WRONG ☐

The Award: In finding for the school committee, the arbitrator wrote: "Once parental leave of a designated dimension is granted, the contract does not require the school committee to renegotiate time frames upon request. To do so would not be in the best interest of either the union members or the schools, both of whom ought to minimize comings and goings wherever possible. Parental leave is expected to be a planned occurrence."

CANCEL

the bulk mail look

A postage stamp gives direct mail a personal look that meters and indicia can't. A look that tells recipients it was prepared with care, it's important and worth opening. That "personal" look can be your edge in attracting attention in an increasingly crowded medium. POSTMATIC POSTAGE STAMP AFFIXERS make it economical and convenient to get that personal look.

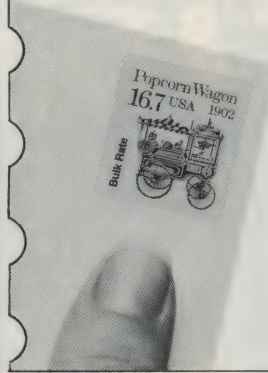


Model 500
Semi-Automatic
Stamp Affixing Machine

ONLY \$1995

Write or Call
(612) 784-6046

Postmatic, Inc.
780 86th Ave. N.W.
Minneapolis, MN 55433



Circle Reader Service Card No. 411



**PRINTER NOISE UP TO 90%
INCREASE EFFICIENCY & PRODUCTIVITY**

NEW
1988
MODELS

BUD-JET LINE
NOISE CONTROL ENCLOSURES



PHONE FOR
BROCHURES

FOR
MOST

80 col. printers \$119⁰⁰

FOR
MOST

132 col. printers \$139⁰⁰
(OTHER SIZES AVAILABLE)

QUALITY at a LOW PRICE

SHIPPED
UPS

MKM MFG. INC.

TOLL FREE 1-800-253-2830 IN CA & AK 707-763-0981

1290 HOLM ROAD • PETALUMA, CA 94952

Circle Reader Service Card No. 278

FREE MODEM
WITH JT FAX 9600
OFFER EXPIRES 2-28-89



Send And Receive Fax Right From Your PC

#1 **JT Fax**
The Best Selling
PC Fax In
America

PC Computing
**MOST
IMPORTANT
PRODUCT
OF THE
YEAR**

DEC 1988

PC WORLD
**BEST
BUY**

1988

PC
**MAGAZINE
EDITOR'S
CHOICE**

JAN 1988

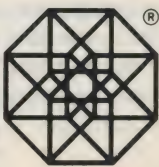
INFO
WORLD
**PRODUCT
OF THE
YEAR**
READER'S
CHOICE
POLL

1988

**From
\$395**

JT Fax internal and portable 4800 baud models for PC/AT/XT and PS/2.
9600 baud board with optional modem daughter card.

Call to order the right JT Fax for you.
1-800-548-3420
In Georgia: (404) 564-5566 Fax: (404) 564-5528

QUADRAM 
An Intelligent Systems Company
One Quad Way, Norcross, Georgia 30093
Quadrax logo and JT Fax are trademarks of Quadrax

If the phrase PC-fax linking device sounds like jargon best left to the office tekkies, read on. You're in for a surprise. This is hard core office technology—in fact, the latest PC-fax products and enhancements will be easier to incorporate into an office routine than almost any other innovation to date.

First of all, if you communicate with the outside world via mail, phone or delivery services, fax technology is something you either already have or at least have considered. It is easy to use and reasonably priced. But up until two years ago, when adding facsimile to the PC sitting on your desk became a reality, facsimile required a stand-alone unit—another high tech amusement for the office equipment inventory, but not so easily justified.

Lacked Compatibility

It's true that the idea of using a PC to send and receive messages has been around long before facsimile or fax technology began to emerge, and although many businesses as well as individuals communicate by modem, the lack of compatibility stymied the marketplace.

But when facsimile first appeared, the idea of sending paper messages—not electronic ones—caught everyone's interest. After all, even the executive who wouldn't consider placing a PC on his or her desk was a whiz at dialing a telephone, and if pushed could even run the office's desktop copier. It naturally came to pass that the fax machine, with the looks and attributes of a small copier and the familiarity of Ma Bell's dialing system, would win their hearts.

A standard fax machine is generally considered to be a self-contained unit which comprises a scanner to read the paper fed into it, a modem to transmit and receive "copies" of the paper via phone lines, and a printer to print them. For the user who doesn't care about the technology, the process is best described as putting a paper original in a fax machine, dialing a telephone number and having the copy come out on someone else's fax machine. Paper originals can mean reports, handwritten notes on fancy letterhead, even drawings and photos. The same documents that get shipped via overnight delivery services can instead be sent by facsimile and arrive almost instantaneously—for about the price of a phone call.

CAP International of Norwell, Mass., estimates that there are over three million fax machines installed worldwide,

Using Fax Technology To Contact the World

As companies began making heavy use of fax units, they also looked for improvements.

By Pamela Jarvis

and that over a million of those are in the U.S. Since this translates to roughly one in 10 offices with a fax machine, the interest in facsimile has certainly gone beyond that of simply being a high tech toy. And, as companies began making heavy use of the machines, they also started looking for improvements.

For starters, to send something by a standard fax machine, it has to be in hard copy, printed first on paper. And

even though the machine was first developed to accommodate sending graphics via phone lines, explaining why facsimile has grown most quickly for Japan's business community who still write messages by hand, most fax transmissions in the U.S. are text.

If you've saved any money on the purchase of a standard fax machine, when you receive a fax transmission, it's not only going to print fairly slowly, but on



Quadram's JT Fax Portable and a laptop unit such as Datavue's Spark provide a solution for the user who needs a portable office at home or on the road.

thermal paper in most cases. This means that the quality won't be all that great, and if you want to keep the print-out as a file copy, you'll probably want to copy it because thermal paper tends to discolor, and the image may even disintegrate in time.

If you're accustomed to good, crisp print-outs from the printers attached to your office's PCs, you could invest \$4000 or more in a laser fax, or invest \$700 or less in a PC-fax board that will turn your PC into facsimile that will send, receive and print quality documents. For an additional \$1000 to \$2500 for a scanner, your PC turns into a virtual fax machine.

All this goes into explaining the amazing sales figures amassed by PC-fax board manufacturers. According to International Data Corp., shipments jumped from a total of 1200 in 1986 to roughly 50,000 for 1988. At this rate, offices with facsimile could become as common as those with copiers.

Since most businesses today already have PCs, it's easy to see why the PC-fax

board, or fax card as they're sometimes called, would boost the installation of facsimile. It's simply an option for a PC that fits in one of the machine's expansion slots. With a PC-fax card and accompanying software, documents that have been typed or scanned into a PC are converted to a fax image, and either sent to a standard fax unit which will print it, or to another fax-equipped PC.

Worry-Free Sending

As long as you're using facsimile, you can send or receive to and from any fax-equipped PC or standard fax unit without worrying about compatibility. Quadram, which boasts the lowest priced PC-fax board (\$395) has also introduced an external, portable board that goes where you go, costing \$495. And, although most vendors require that you have an IBM PC or compatible to house your fax board, Quadram will soon release its JT FAX Macintosh, another external, portable unit which will allow Macintosh users to communicate with other fax ma-

chines or facsimile-equipped PCs.

While leading vendors of PC-fax boards sell basically similar products, the prices can range from \$400 to as high as \$1200. The price differences closely relate to the capabilities of the fax board, making the "you get what you pay for" axiom more true with these PC add-on devices than with most others.

The more expensive models provide delayed transmission (to take advantage of lower phone rates), quicker, better conversion of applications files to the standard fax format, and a range of background operation levels.

Dest Corp. believes that what sets its Facsimile Pac product apart from the rest, aside from the \$995 price tag, is its true non-dedicated, background fax operations. The Facsimile Pac can send, receive, convert to fax format, scan and print, all accomplished concurrently.

The Modem Options

Going beyond simple facsimile, Complete PC, Datacopy, Dest, Gammalink, Intel and Quadram all offer PC-fax boards models with modem options. Because sending text via modem is by far slower than the common 9600 baud speed of facsimile, the major considerations for combining modem capability with a PC-fax board are that it eliminates the need for an additional slot and, with the modem, you can also transmit and receive computer files. The drawback here is that because there is no standard data format for transmissions via modem, a fax modem can exchange data only with an identical fax modem run by the same controlling software. Several of the leading vendors, however, have joined forces with CAP International in an effort to define a standard which will enable one fax modem to exchange computer data with any other fax modem.

Some industry experts believe that you should not buy a fax modem until you acquire a fax machine.

The solution may be that for the price of a low-end fax machine, combined with that of a PC-fax linking device, software and scanner, your office could have the most complete facsimile capability available—at no greater cost than that of a fully loaded fax machine. **TO**

PAMELA JARVIS writes frequently on office automation and other issues. She is the principal associate of Pamela Jarvis Ltd., an Alexandria, Va. consulting firm.



The family of PC-fax products by Complete PC, Inc. features on-screen facsimile display. Over 100 printers and most full-page scanners also are supported.

Electronic Typewriters: Add-Ons Boost Versatility

With display screens, micro indexing and error-correction, today's high-end units are viewed as true word processors.

By Ellen L. Gragg

Long thought to be on the edge of computer-induced obsolescence, the electronic typewriter continues to show surprising signs of life. The memory and text-editing capabilities offered by personal computers and word processors have become virtually indispensable for some. But many keyboard operators are reluctant to give up the reassuring familiarity of a typewriter keyboard, uncluttered with function keys. And the attached platen printer cannot be improved upon for simple tasks like filling out forms and addressing envelopes.

The capabilities of ETs seem to expand every year, with video screens, diskette drives, and computer-type operating systems becoming commonplace on many high-end units. With this in mind, the novice can certainly be excused for wondering how to tell a personal computer from a word processor from an electronic typewriter.

A Fundamental Difference

The fundamental difference, industry experts agree, is that the ET's keyboard is essentially unchanged from that of a conventional machine. While it has some additional keys, arranged around the traditional keyboard, none of the keys have been rearranged. There are fewer new keys than on a WP or PC, and all the new ones are clearly marked in plain English.

Familiarity of the keyboard, the concomitant fact that an ET is relatively easy to learn to use, and the fact it is called a typewriter rather than a computer, all serve to make it popular with users, especially those who might feel intimidated by a computer. With the high-end, programable and powerful machines, the name "typewriter" represents marketing position more than anything else, admits

John Gering, ET marketing manager for the Xerox Corp.

But even the most complex unit can be switched to typewriter mode for tasks that are unwieldy on word processors or personal computers, with their remote and automatic printers. It is simply not practical to stop a whole processing system and contact a computer room just to get an envelope typed or to fill out a form. Still, these tasks will have to be performed, and an ET provides an efficient way to approach them. An ET allows a secretary to perform the simplest or most complicated word processing tasks on the same compact machine.

Size Becomes a Factor

The relative size of an ET also makes the product attractive. ETs have a small "footprint," since the keyboard, printer, operating system, diskette drive, and frequently the screen, are part of one machine, rather than separate components connected with wires. No matter how advanced and feature-laden, an ET will still fit on a secretarial return. This means convenience for the user (no need to get up and move to a special work station) and cost savings for the firm (no investment in special "word processing" or "computer" furniture).

Electronic typewriters come in several different classes, from portables with tiny memories, to disk-operating systems with video screens and expandable memories. Though not practical for office use, portables can be handy for executives who must produce reports while on business trips.

Compacts, one step up from portables, are the least expensive of the ETs designed for office use, and represent the true growth area of the ET market,

according to Nick Morisco, head of the typewriter division at Panasonic. Compacts typically offer print speeds of about 16 characters per second, one to two lines of memory (about 140 characters), and prices under \$1000. Increasingly, these are being equipped with options like spelling verification programs, bold and italic printing and indexing.

Micro indexing is a feature now offered by several manufacturers, which allows the user to adjust line spacing in increments of 1/20th of an inch. Users can find this invaluable for neatly filling in forms, and for formatting such documents as charts and resumés, where spacing is critical to overall viewing.

Compacts are best suited for small offices with typing loads of about four hours per day. For the busy office with eight hours of typing a day, a so-called low-level ET is recommended. It prints at about 18 cps, stores 1000-4000 characters, and costs up to \$1500. A significant difference is the low-level unit's liquid crystal display for previewing input, where compacts typically output directly on paper and all changes are made with correcting ribbon.

Importance of Upgrading

While users like low-level typewriters, some manufacturers are devoting most of their attention to compacts and high-end machines. Many vendors deal with the issue by making low-level upgradable machines with add-on diskette drives, video screens, and memory cards. Industry experts recommend that users who start small make sure their units are fully upgradable, so that the initial investment is not lost.

The high-end machines, sometimes called text editors, range in price from about \$1500 to over \$5000. They have



permanent memory capacity of 8000–64,000 characters, which can be infinitely expanded using diskettes for external memory storage. These machines print at about 20 cps via attached daisy-wheel printers.

The daisywheel, with its clear, attractive characters, is the standard for ETs. However, many high-end units can be attached to laser printers for faster printing. Laser technology keeps improving, and the best machines now approximate letter quality, so the user does not necessarily lose attractive output as a trade-off for speed.

The most noticeable feature of the text editor is a video display screen, which makes it look similar to a personal computer. This screen displays a full page of input, exactly as it would appear on paper. Instead of the jumble of codes embedded in the type that many WPs

thing else not already entered in the canned program. Some machines also store dictionaries and thesauri in memory, so the typist can check a reference without leaving the machine.

The use of “windows,” which allow the user to switch into a new program without turning off the text-editing function, makes on-line references handy. The typist can look up a word in a window of the screen while the document under preparation remains on display. Whole phrases and blocks of copy can be stored in memory for frequent use. “Boilerplate” or commonly used copy can be inserted into letters, press releases, legal briefs and catalogs by the use of a simple code, rather than by rekeying the entire passage.

Blocks of copy can also be moved within a document, so that if an executive decides, after seeing a rough draft,

While the ET’s printer is slower than WP printers, attaching a laser printer eliminates this difference. Moreover, the advent of disk-operating systems (DOS) as the mind of the machines, means that high-level ETs have the same internal systems as dedicated word processors and personal computers. The speed of processing and the amount of work to be stored in an ET is only limited by the power of the individual DOS and the amount of memory the user has purchased. The presence of DOS also means that these systems can handle spreadsheets and perform calculations. In fact, they can do anything a PC can, provided the program has been written.

Today, most DOS-based ETs are hardcoded, which means the programs are permanently stored on the hard disk and cannot be revised or added to. However, the growing popularity of DOS

No matter how advanced and feature-laden, an ET still fits on a secretarial return.

and PC word processing packages will show, an ET can simply display the desired result.

Error correction is the first feature that comes to mind when word processing functionality is mentioned. It is so central to the electronic typewriter that it almost goes unmentioned as more exotic features are extolled. The primary function of the memory feature is to facilitate correction without laborious retyping. The extensive memories common to high-end machines allow correction and revision of lengthy documents.

As manufacturers seek to enhance the error-correction capabilities of their systems and fully utilize the memory storage, they add such elaborate features as global search and replace, which locates every use of a given word or phrase and replaces it with another. This feature is useful for revising a model number in otherwise current marketing copy or correcting a misspelled name throughout a document.

Even the simplest machines now have spelling checkers. On high-end units, these programs are enhanced to allow user-entry of industry-specific terms, names of clients and products, and any-

thing to tackle subjects in a different order, the secretary’s work is not wasted. A few easy commands will move paragraphs into the new order.

The attractiveness of finished copy is another advantage of ET systems. In addition to the well-formed characters provided by daisywheel technology, ETs offer a number of formatting features that improve document appearance. Automatic centering, both from right to left and from top to bottom of the page, bold face, italic face, justifying, and automatic underscoring are among the most popular.

Many models also offer pitch and font flexibility. Pitch is the amount of vertical space between lines. Font is the typeface. On many machines, various typefaces are available. Options like these are useful for offices that want the appearance of professionally typeset documents without the expense of outside services or a full-featured desktop publishing system. Newsletters, resumés, and employee handbooks are examples of applications for these options.

It was once true that ETs could not handle the workloads of dedicated word processors, but those days are gone.

means the day when users can purchase software packages to add to their ETs is not far off. The advantage of hardcoded programs is that they are included in the price of the system, and do not have to be purchased separately, as is so often the case with PCs.

RS232 ports are common on high-end ETs. These allow them to accept a communicating wire that goes to a peripheral printer, a modem, fax or telex machine. Of course, the ET must be programmed to understand communications with the peripherals, but such programs are becoming more and more standard.

As the technology matures, electronic typewriters are increasingly powerful and similar to personal computers in their range of functions. Their comfortable and efficient keyboard and the fact that they are designed to make text manipulation easy and elegant make them a solution for high-volume typing. **TO**

ELLEN L. GRAGG is a writer who concentrates on the office automation market. She lives in Indianapolis, Ind.

(Cartoon by Steve Delmonte)

Expanding the Scope of Artificial Intelligence

Among the most intriguing now in use is an interactive expert system that challenges.

By Rick Friedman

Artificial intelligence in the form of expert systems is emerging from its specialized and experimental niche into the practical computing mainstream, and the office environment has begun to dip in a toe. Expert systems are already used for business planning and forecasting, sales checking, office relocation, health claims adjustment and graphics selection.

Among the most intriguing now in use is an interactive expert system which helps a public speaker organize his or her thoughts. The program conducts a

dialogue with the user, who types in free-form English sentences. The expert system functions as a checklist of things a speaker should consider such as: "Who is the audience?"; "What are my key supporting points?"; and "What examples or illustrations can I use?" Serving as a tutor, this expert system challenges the user by making suggestions and forcing reconsideration of key questions.

More office uses for such systems are just over the automated horizon. Those who wish to understand it and not be scared by 21st-century scientific hyper-

bole must know it for what it is: the computer emulation of reasoning behavior of human experts. Nothing more than that.

When this emulation of reasoning behavior is amplified by integrating it into other computing techniques such as management information and decision support systems, one has an expert system which can solve problems normally approached by conventional non-computer methods.

Simply put, expert systems are the combined knowledge of many disciplines placed into a box called a computer.

An expert system does not think. It knows. If that sounds like something out of *The Twilight Zone*, view it as collecting one—some or many experts in a phase of office procedure such as high-volume commission selling—putting them in one room and collecting their combined knowledge. Through an expert system, this knowledge is passed on to those who are not as expert in selling on commission. They can use the expertise when advice, explanations and conclusions can close a deal.

Fountain of Knowledge

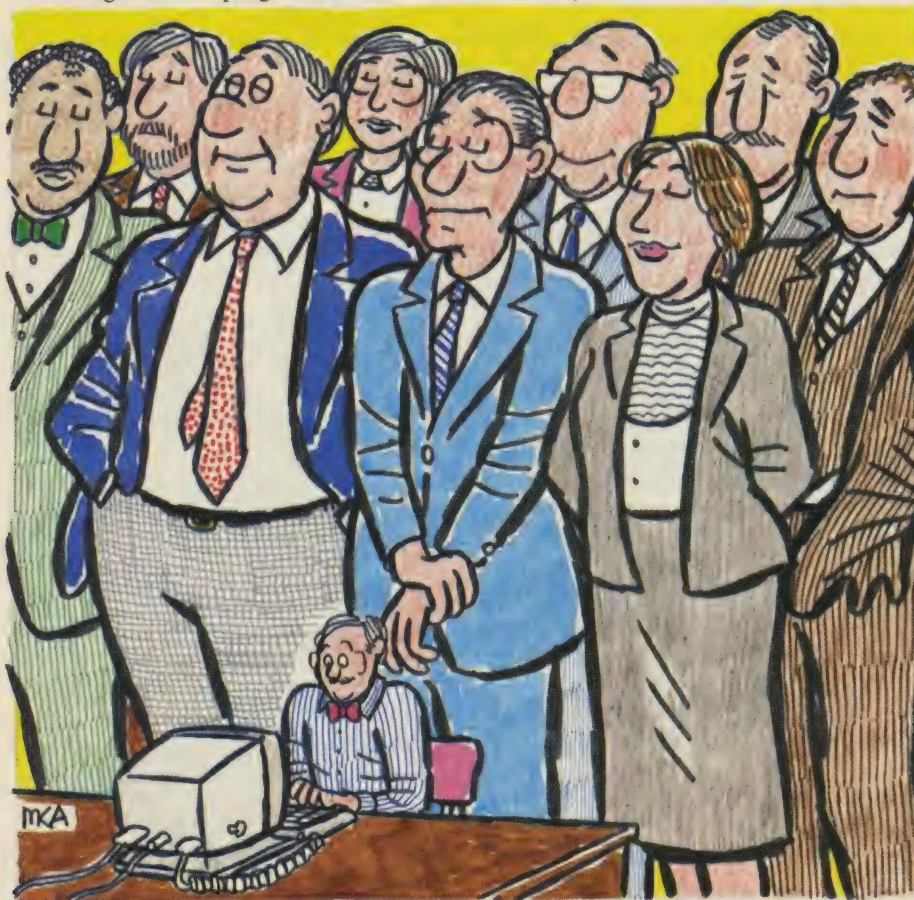
The top sales people's knowledge has now been disseminated to the rest of the sales staff; these highly-paid sales people are now freed for more demanding or creative tasks which require their expertise, such as increasing their high-volume selling.

Another way for those in the office environment to divine an expert system is to think of rules of thumb (heuristics) that govern a particular problem such as credit scoring. The rules are transferred into shells which have two parts: the knowledge rules base and an inference engine—a program that tells the expert system how to seek answers.

The Rules of Thumb

The rules of thumb, supplied by an expert or experts, are applied on one's terminal through the inference engine which either chains forward or backwards. Forward: "Given these facts, what will happen?" Backwards: "Given these facts, what led up to them?"

The knowledge base can have a half-dozen rules of thumb, or can have hundreds. All the terminal operator must care about is that the expert existed (he or she could already have died or retired) and was able to explain his or her special knowledge, judgment, problem solving,



Expert systems are comparable to giants who stand ready to help the little man solve his problems. (Cartoons by Mark Armstrong.)

WHAT WE KNOW ABOUT DESIGNING MAILROOMS COULD FILL A BOOK



A BOOK CALLED THE MAILROOM DESIGN GUIDE

Use the Hamilton Sorter Mailroom Design Guide to help you plan your entire mailroom operation. 33 pages of space planning ideas, sample designs and actual configurations used in some of the nation's largest mailroom operations. Also included is an in-depth survey and space planning grid that allows you to develop ideas for your own mailroom operation.

Hamilton Sorter Mailroom Furniture Systems are built to last a lifetime—over 20 years of experience. The system has more sizes, shapes and possible configurations than you'll find anywhere. That's why 9 of the top 10 commercial banks, 8 of the top 10 life insur-

ance companies and 6 of the top 10 utilities use Hamilton Sorter furniture in their mailroom operations.* Over 6,000 companies and government agencies are currently using Hamilton Sorter mailroom furniture. Many of these companies have established Hamilton Sorter as their standard, for mailroom furniture.

Space Planning—workflow design—increased productivity—it's all here in the Mailroom Design Guide and it's free for the asking.

To receive your free Mailroom Design Guide call your authorized Hamilton Sorter dealer or 1-800-543-1605. (In Ohio 1-800-543-8334) Or send in the attached coupon.

PLEASE SEND ME YOUR FREE MAILROOM DESIGN GUIDE TO HELP ME PLAN A MORE PRODUCTIVE MAILROOM.

☐ Please send me my FREE Mailroom Design Guide

☐ Please have a representative contact me.

I will be designing a mailroom in:

☐ 3 months ☐ 6 months ☐ 12 months

☐ Please send me your color catalogue on mailroom furniture systems

NAME _____

TITLE _____

COMPANY _____

STREET _____

CITY _____ STATE _____ ZIP _____

PHONE _____

H HAMILTON SORTER CO., INC.

3158 Production Drive, P.O. Box 8, Dept. TO-289
Fairfield, Ohio 45014
Tel. 513-870-4400 or 1-800-543-1605

Attention Government Agencies, Hamilton Sorter Mailroom Furniture is on CSA Schedule GS00F-76003

*Based on 1984 Fortune 500 list of U.S. industrial companies.

Circle Reader Service Card No. 466

educated guesses, or experience to a knowledge engineer with the ability to extract and program it.

Twenty years ago, expert systems were the private domain of edifices like M.I.T. The rest of us viewed them mainly as electronic chess masters who could checkmate Bobby Fischer. Then vendors realized these expert systems could be turned into sophisticated computer aids for government, industry and business.

Expert systems turned up in mining as geological drilling advisors for finding ore deposits; in agriculture for eradicating crop disease; and in medicine for diagnosing illness. (Imagine having the expertise of a great doctor sitting inside your computer terminal and you have the essence of expert systems.)

Off-the-shelf expert systems are now used in finance, insurance, accounting, law, marketing, management, and strategic planning to solve real problems that conventional computing alone can't tackle. They are now used to make the right decisions, produce the right products, provide more revenue and cut expenses.

A tax advisor package provides estate

tax plan advice for clients, arranging financial affairs so that income and death taxes are minimized without jeopardizing sound investment decisions and adequate coverage.

A will production expert system with 190 rules assists trust companies, lawyers and clients with an elementary knowledge of legal wills to make a comprehensive one.

Thousands of Rules

American Express created an expert system with more than 1000 rules to determine whether to accept a credit-card member's charge. The card member's charge history and the specific charge in question trigger the appropriate rules.

Coopers & Lybrand, the New York-based accounting and consulting firm, developed an expert system for audit and tax procedures. The expert system can sift through issues that require clarification and additional information. More than 1000 rules were derived from knowledge engineering sessions with more than 20 senior tax and audit experts at Coopers & Lybrand.

That noted firm also designed an ex-

pert system to assist in underwriting marine liability umbrella insurance. It was designed to assist junior underwriters in formulating likely questions from senior underwriters.

Deregulation in the early 1980s resulted in banks, insurance companies and brokerage houses competing for the same business, often with the same products and services. Many of these financial institutions turned to expert systems to gain a competitive edge. Systems that came on the market included: A financial planning package that increased a bank's capacity to offer financial plans to a wider range of customers. Clerical packages that increased productivity by performing tasks such as late payments that resisted automation. A check-processing package that combined proof, encode, prime pass and reconciliation into an integrated operation, provided a rapid method of check verification.

Selling Bank Products

Also, a sales package made the bank's products readily available to service reps who could then offer various combinations to meet a customer's needs. A credit-scoring package was used to evaluate the credit quality of people to whom the bank made loans, making the examiner's operation run more smoothly. The rules were taken from the bank's internal policies on credit scoring. A financial planning package with 7500 rules guided customers to where they wanted to go with their financial future, and a package for residential real estate appraisal set the auditing guidelines for junior auditors in the field. The rules came from senior auditors.

Systems for Brokers

Brokerage firms began using expert systems for more efficient ways of producing individual financial plans; repositioning assets; updating financial plans; and producing a more complete picture of a client's goals.

Independent financial planners began using expert systems as "what-if" models for broadening customer bases and introducing new financial plans. One expert system utilized a data base of built-in rules by financial planning experts to tell clients what these experts recommended. The financial planner could create economic models for all the recommendations and show "what-if" scenarios to the client.

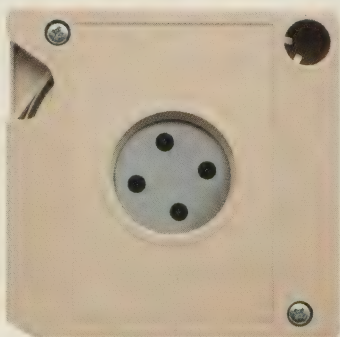
(Continued on page 74)



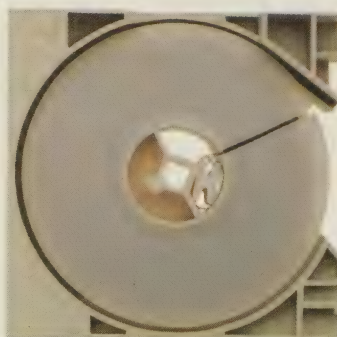
"Expert systems represent the knowledge of various disciplines placed in a computer."

Now the Canon PC 80 makes going

from this



to this



as easy as this.



With its Autocarrier 100C film carrier, our well-read best seller just got better.

Finding a way to improve our best-selling universal reader/printer wasn't easy. But now, with our Autocarrier 100C film carrier, the PC 80 is more powerful and reliable than ever before.

Because now, in addition to accepting just about every microfilm (including West's® Ultrafiche Edition®), the PC 80 accepts ANSI or 3M-type cartridges with just the flick of a switch. Eliminating time-consuming film carrier changes.

And with a film transport speed of only 10.5 seconds/100 ft., automatic threading, and an LED odometer that doubles as an error message center, the PC 80 is also more efficient than ever before.

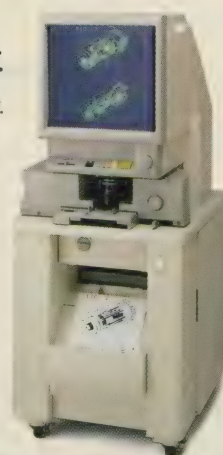
Plus you can upgrade your PC 80 to a retrieval reader/printer and even integrate it into a Canon CAR (Computer

Assisted Retrieval) System for greater productivity.

And you still get all the advantages of Canon's exclusive PC Cartridge technology that combines the drum, toner and developer in one, easy-to-replace unit.

It's fast. It's durable. And it's one more reason why Canon should be your first choice in reader/printers.

For more information, check the Yellow Pages for your nearest authorized Canon Micrographics dealer, or call toll-free 1-800-647-5300 and ask for Canon Micrographics.



CANON
J22N 322950
CANON U.S.A., INC. Enjoy easy extended payments with the Canon Credit Card.
Ask for details at participating Canon dealers and retailers.
Available only in U.S. © 1989 Canon U.S.A., Inc.

© West's Ultrafiche Edition is a registered trademark of the West Publishing Corporation.

Canon **PC 80**
MICROGRAPHICS **READER PRINTER**

Bringing information management down to size.

Circle Reader Service Card No. 269

In the insurance industry, the expertise of senior underwriters was passed on through expert systems to junior underwriters, improving risk assessment on quantitative information. These expert systems assisted in reviewing gaps and overlaps in client policies.

One package took application information as input and presented a picture of the applicant. It noted future information to be requested, recommended "decline" in clear decline cases and presented recommendations to the underwriter in difficult cases. It allowed underwriting technicians to assume junior underwriting responsibilities, saving the time-consuming review of incomplete cases by senior underwriters.

Menu-Driven System

For trading, accounting operations and portfolio managers in large financial services firms handling \$100 million or more in investment portfolios, a menu-driven expert system fully integrated trading, accounting and operations functions. It recognized "types" of securities. An internal knowledge-based model of all securities in the financial organization

automatically determined the relevant value pertaining to newly-entered issues, providing traders with on-line, real-time position information.

Expert systems are just beginning to enter the office environment. What is bringing them in is the evolution of micro-based software packages, more powerful hardware and declining cost of memory.

Thomas J. Martin, vice president and director of the Artificial Intelligence Application Center at Arthur D. Little, Cambridge, Mass., points out that the penetration of expert systems in today's office environment so far hasn't been significant, partly because expert systems have not gotten down the garden variety of PCs used in offices.

"Expert systems require the PC AT class or above," Mr. Martin maintains. "What has also happened is that the adoption of the larger machines to expert systems has been slow. There's been a lag in expert system software and it's been difficult to justify the higher-cost personal computers. Adding to this lag is the expense of software."

So far, it's been almost impossible to identify expert systems packages com-

plete with knowledge that is widely useful, Mr. Martin says. "Companies are only right now beginning to find specific areas where those tool kits are applicable." When more expert systems software comes on the market, he says, there will be wider use of expert tools in the office environment.

Some Ready Choices

Those who don't want to wait do have some choices right now. An expert system package already on the market controls inventory as each sale order is entered. It automatically searches for opportunities to work off slow-moving, obsolete or off-standard inventory when all the day's orders have been entered, allocating resources to maximize profit, unit volume or cash flow. Afterward, it signals opportunities to use idle equipment, offer price/volume discounts, pay premiums for extra labor, materials or equipment, all to increase profits.

Dr. Mike Turner, a British artificial intelligence consultant, has predicted future uses of expert systems in the office environment. They should include:

- Records management, which will embrace the handling of all business records, assisting the corporate records manager in deciding on policy and procedure and assist the user in applying these procedures.

- Message distribution, to help reduce the number of redundant messages distributed and filed, and the number delivered "express" when the normal distribution method would do.

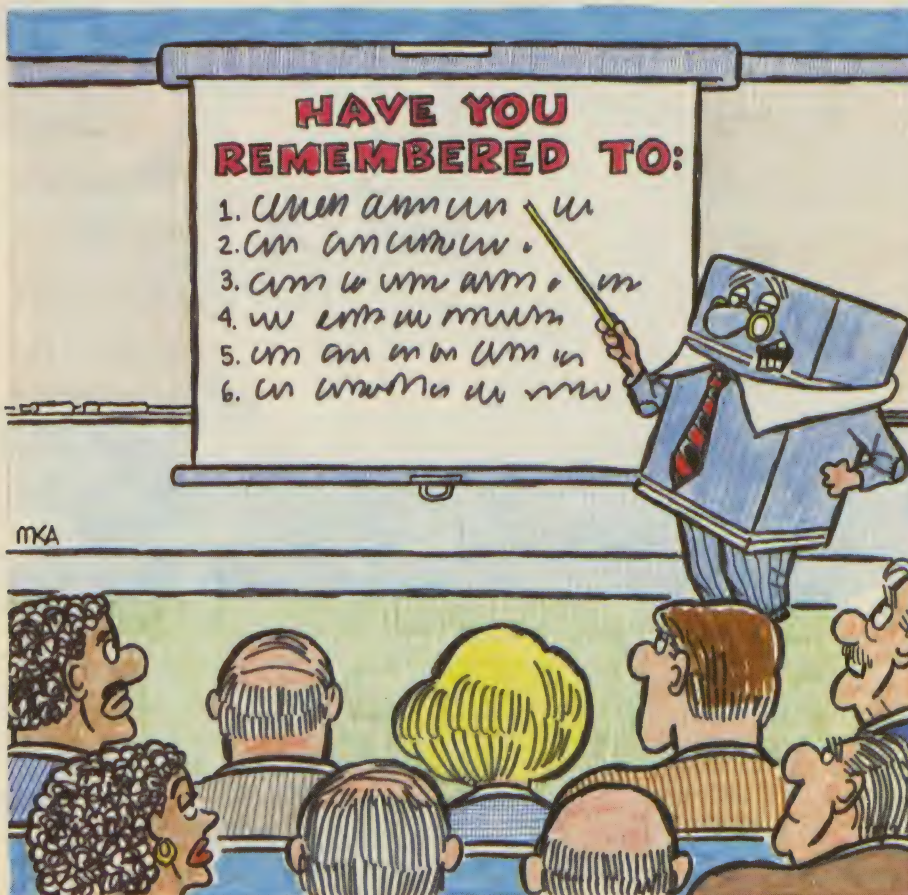
- Information retrieval, for defining the user's need of information available, selecting the sources where the information is likely to be available, and searching the best possible delivery systems to access the information.

- Decision support, for integrating data from diverse sources to produce recommended plans, permitting decision-makers to concentrate on problem formulation and strategy.

- Aids to strategic development, for identifying future competition.

The future of expert systems in the office environment is very exciting, according to Mr. Martin. "What we'll see are highly functional, fast, efficient PCs which, at low cost, will add mainframe types of power to the desktop." **TO**

RICK FRIEDMAN, a technical writer based in Woburn, Mass., writes frequently for this publication.



Public speaking made easy. Expert systems help organize a speaker's thoughts.

Switch!

WORD
PROCESSOR

ELECTRONIC
TYPEWRITER

© 1988 Sharp Electronics Corporation

You'll be amazed at what Sharp's new typewriter turns out and turns into.

Flick the switch right and you get the new Sharp ZY-1000S electronic typewriter that turns out letter-quality documents. Yet, amazingly enough, the ZY-1000S is as easy to use as a standard typewriter.

It also offers a line-up of automatic features that make the typist's job simpler and more productive. Like Auto Correct for fast, efficient editing. And the Abbreviator that spells out abbreviations.

Now flick the switch left and it turns into an easy-to-use word processor. With a memory capacity and editing

capabilities that are big enough to handle the most complex business documents.

And that's not all. It also switches on a compatible personal computer that runs a wide range of advanced IBM* software.

You get all three—electronic typewriter, word processor, computer—in a compact one-piece unit. For far less money than buying them one-by-one.

For more information on the amazing new Sharp ZY-1000S, mail in the coupon or call **1-800-BE-SHARP**.



SHARP®
FROM SHARP MINDS
COME SHARP PRODUCTS™

*IBM is a registered trademark of International Business Machines Corp.

TO/02/89
Mr. Bill Maul
Electronic Typewriters/Commercial Calculators Division
Sharp Electronics Corp.
Sharp Plaza, Mahwah, N.J. 07430

Please send me more information on the Sharp ZY-1000S electronic typewriter.

NAME _____

TITLE _____ PHONE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

Vivid Colors Enhance In-House Presentations

Lectures or 'chalk-talks' were once enough, but quality visuals hold audiences much longer.

Desktop publishing systems in the office can do more than create illustrated newsletters, reports and proposals. Desktop presentation—the generation of charts, graphs and other visuals as overheads for use in presentations—is perhaps one of the most important and useful extensions of such a system.

Presentations are powerful aids in selling ideas in today's competitive business

environment. For more than 15 million professionals in the U.S., presentations are an integral part of the job, with careers and big sales often on the line. For a lot of people, the realization of potential and ambition can depend on the success of such presentations.

To be successful, presentations need to keep pace with growing office technology. Lectures or "chalk-talks" were once enough, but quality visuals today

hold an audience's attention much longer. Presentations using visual aids are almost 50% more effective than their unaided counterparts, according to recent research conducted by the University of Minnesota and 3M.

Shown to be even more powerful were presentations using color. Studies conducted by one vendor reveal that well-placed color gets attention. Today's audiences, accustomed to color TV, much prefer watching presentations with color visuals over those that are only black and white. Those same audiences perceive color presentations as being of high quality, and rate their presentors as being more credible and professional, even if their speaking abilities waver.

Not Practical Until Now

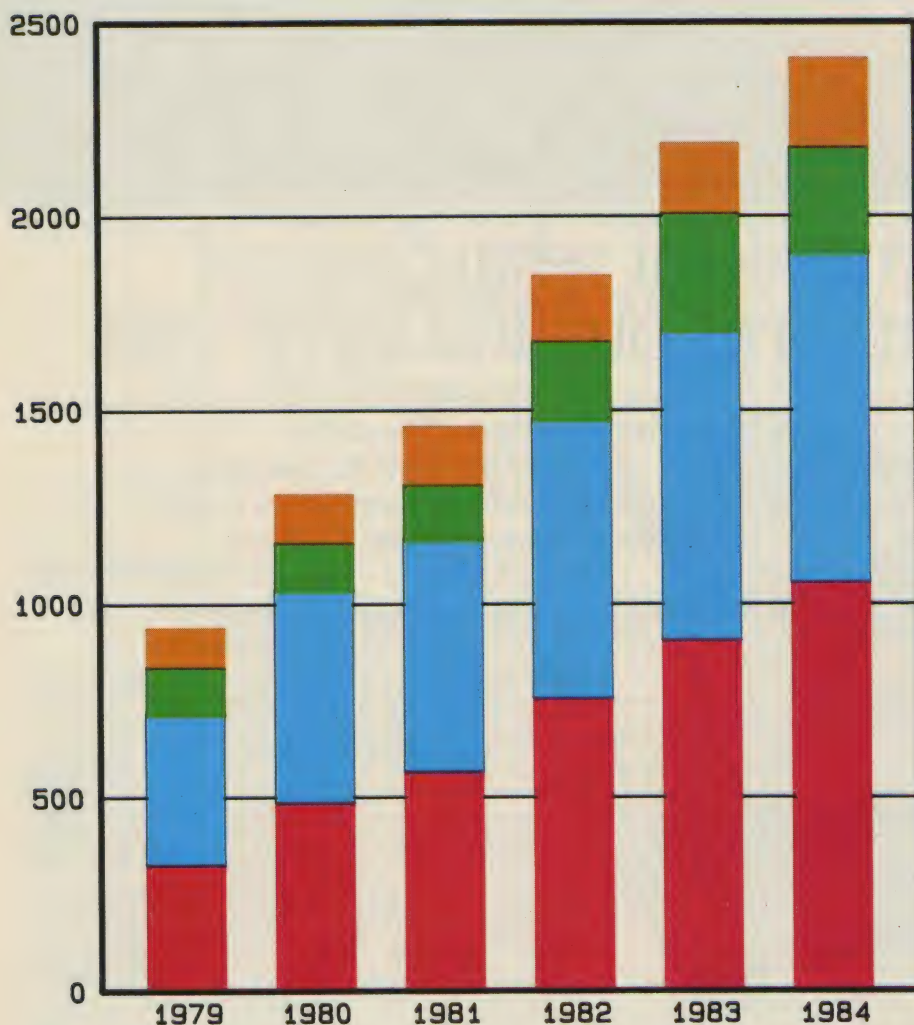
Adding color to presentations is a very attractive alternative for the competitive professional, but the process has not been practical until now. Such work had to be farmed out to labs and agencies, where lead times could be anywhere from days to weeks, confidentiality of materials was always in jeopardy, and costs were astronomical.

The advent of desktop presentation changed all that by making graphics an even more important part of the office. With existing systems and software, and the addition of an affordable color output device, desktop publishers can benefit. Quality color offerings can be produced in hours, compared to the days it would take an outside lab. They can also be customized to specific meetings, customers or management, with changes made up to ten minutes before meetings. The integrity of the information remains intact and desktop presentations save money. Each overhead costs, on the average, \$2 if done in-house. The same overhead can cost anywhere from \$20–\$100 from an outside source.


The Color Output Device

The only addition required to a typical desktop publishing system is a color output device capable of printing on transparencies. Most are compatible with major software, either directly or with drivers, and can be broken down into three categories: color thermal transfer printers, color ink-jet printers and pen plotters.

Color ink-jet technology is cost-effective, with high-resolution devices such as the Hewlett-Packard PaintJet, available for less than \$1400. Typically, the



A typical overhead transparency created on a Hewlett-Packard 7475 graphics plotter. Unretouched reproduction is by Chisholm Technologies, San Jose, Calif.



Copier Paper 8 1/2 x 11
WHITE

Don't pick up strangers.

You never know how they'll behave. One time you might get O.K. copies.

Next time, though, you might get copier jams and misfeeds. And who needs that kind of uncertainty?

Certainly not you.

Good copies are much too important to leave to chance.

That's why you should only pick up copier paper that's made by

somebody whose name you know and whose quality is a matter of record: Hammermill.

Hammermill practically invented copier paper. We make our copier papers to extremely rigid standards. We check them out 38 ways during manufacturing. And we test-drive them on copiers just like yours.



**If it isn't Hammermill,
it's just copier paper.**

All to make sure you'll get the clearest, crispest, most readable copies—not just sheet after sheet but ream after ream, day after day, week in and week out.

So why not pass on no-name paper and pick up Hammermill? Call toll-free 1-800-242-2148 for the Hammermill supplier nearest you.

most inexpensive devices are desktop pen plotters, such as the HP 7550, HP 7545 and HP ColorPro. Another option are film recorders that produce 35mm slides, and not overheads. These machines cost thousands of dollars. Thermal transfer printers, in the \$5000-plus range, are difficult to justify as cost-effective devices, unless high throughput is essential.

Before a user purchases an output device, his needs should be considered. Plotters are well-suited for basic graphs and charts, producing the sharpest edges and richest colors. Color ink-jet printers are excellent for mixing colors and shading, and have the capability of merging text and intricate color graphics to add flexibility to a desktop system. Thermal transfer printers are the fastest of the devices but their costs can be triple that of ink-jet printers, with not much of an improvement in terms of resolution.

After selecting an output device, desktop publishers not used to dealing with color will need to know a few basics in order to produce professional results.

Good use of color is a subjective process, much like decorating a home. A simple rule-of-thumb here is don't overdo it. An overdose of color can be extremely confusing, especially when colors clash.

Choosing how to depict data also can be a challenge. When are certain charts and graphs—vertical bar, bar, pie or line charts—most appropriate?

Changes over time are often best described with column or vertical bar charts. For example, this kind of chart can quickly demonstrate how the relationship between costs fluctuates from quarter to quarter. A fiscal year, divided into quarters, is represented along the horizontal or x-axis. Columns rising from this axis correspond to material, labor and overhead costs.

Another popular chart is a bar chart (horizontal bar). These charts are best suited for relationships that do not have a time factor. For example, bar charts can quickly present viewers with information about the greatest number of defects on the production floor.

A pie chart is excellent for demonstrating the relationships of elements making up a whole. Production costs can be demonstrated as being made up of material, overhead and labor costs, each making up a certain part of the whole, or pie.

Line charts are used for demonstrating changes over time, such as for monitoring the temperature of a room during the course of a day.

In text charts, it's important to add icons next to main points, in conjunction with highlighting them in one color. The image of the icon is remembered much longer than just a highlight.

Professionals in today's demanding business environment can ill-afford to let the full potential of their desktop publishing systems go to waste. Presentations help them to sell their ideas, which is critical to success. Smart professionals keep themselves competitive in cost-effective ways, taking advantage of available tools. By putting their desktop publishing systems to work, enhanced by color, they do just that. **TO**

An Affordable Technology: Two-Color Fax

As the facsimile phenomenon continues, users are demanding new and better technologies to meet their communications needs. Thanks to a new scanning technology, affordable two-color facsimile is now available in a unit that can send and receive in two colors—red and black.

Scanning and Printing

Black and red color facsimile is made possible by incorporating unique scanning and printing technologies. Two-color scanning is based on a new, patented shuttle-based mechanism. This design allows two distinct light sources to be integrated into the scanning unit. In the past, this has been nearly impossible to do, because in conventional linear scanners many sensing elements must be packed into a small area to cover the entire scanning field, leaving no room for an additional light source. In the new scanner, however, not as many sensing elements are needed, because the field can be covered by the moving mechanism. In addition to using yellow LEDs as a light source for conventional black-and-white data detection, the two-

color fax scanner uses red LEDs for red color recognition.

Black-and-red scanning is a two-cycle operation, using both the yellow and red LEDs for each cycle, resulting in two different outputs for each scanned area. By combining these two, it is possible to "read" whether a scanned area is black, white or red. If a scanned spot is dark, light is not reflected from either the yellow or red LEDs, so the area is defined as black. If the scanned spot is light in color, light is reflected from both the yellow and red LEDs, and the color defined as white. Finally, if the scanned area is red, light is reflected from the red LEDs but not from the yellow LEDs, and the spot is defined as red.

By employing another variation of this scanning mechanism, it is also possible to delete red data from a document. This is done by scanning the area using only the red LEDs. In this "omit red" mode, red is a drop-out color and the scanner recognizes red colored data as white.

For standard Group 3 facsimile transmission to machines that cannot print in two colors, the red LEDs are normally not used for scanning. The advantages of highlighting can still be gained, how-

ever, since the two-color fax also has the ability to transmit red data as a gray scale pattern in the two-color mode.

Special Paper Used

Printing in the two-color fax is accomplished using special thermal recording paper. With this paper, the color printed is dependent upon the heat energy applied from the thermal printing head. The initial level of heat energy produces black, i.e., the same result as standard thermal recording paper. But as the level of heat energy is increased, the color changes from black to white, and finally to red at the highest heat level. The intermediate white color is used to cover the black colored area in preparation for red printing. Specific applications for two-color facsimile can be seen in advertising and other areas.

"Many other applications will undoubtedly be developed for two-color facsimile as market awareness increases," says James J. Lee, senior vice president, Brother International Corp. "Considering the potential for time and money savings, products like our FAX-195R unit have a bright future." **TO**

The Decorator Line by Rolodex

The ultimate in design and function

The Decorator Line by Rolodex - designed by those who have unequalled experience in the manufacture of desktop files. Only Rolodex® has the perfect combination of design and function in the selection that looks right,

performs right and is priced right for you.

The Decorator Line of desktop files - designed and manufactured by Rolodex for a lifetime of outstanding performance.



ROLODEX CORPORATION

245 Secaucus Road, Secaucus, N.J. 07096

© Rolodex Corporation

Rolodex® is a registered trademark of Rolodex Corporation.

Circle Reader Service Card No. 468

An
Insilco
International
Specialty
Company

Advances in Database Management Systems

New programs and upgrades of old ones continue to proliferate. There are literally hundreds of options to choose from today.

By Michael Hofferber

Every office has a database. In some, it is little more than a revolving file and a cabinet full of old sales orders. In others, the DB holds billions of bits of information about production, marketing, distribution and finance, and is managed by a full-time staff.

Obviously, the larger the office, the more difficult it is to organize data so that the appropriate information is available to a specific executive for timely decision-making. Delays can be costly.

Database management systems are computer software packages that organize data automatically as it is entered into memory. Most employ a "relational database," meaning they allow users to open several files simultaneously in their search for information that relates to a particular problem or topic. But since no

two offices are exactly the same in terms of their requirements, DBMS packages frequently include a programming language that allows custom-designed applications such as specialized spreadsheets, profit-loss records and trend analysis.

Speed, Functionality

Recent advances in DBMS have improved both performance—the speed with which the program provides data—and functionality. New programs and upgrades of old ones continue to proliferate. Offices considering one for the first time literally have hundreds of options to choose from. Those currently using a DBMS will want to consider the advantages of upgrading.

"In larger environments, the primary reason for vendors putting out a new product is usually performance," notes Scott McLarnon of the office automation marketing research firm, International Data Corp. A DB performance boost of 15% could mean a significant cost benefit to mainframe or minicomputer users. If the DBMS is being leased, or if the user has purchased a maintenance contract, upgrades are usually offered by the vendor automatically.

Major vendors like IBM and DEC, for instance, have made continual improvements in their hierarchical DBMS packages, IMS and VAX/DBMS. IMS Fastpath, a high-performance version of the IBM DBMS, will perform 1000 transactions per second. IMS is at present the most widely used large-system DBMS, but its new relational database—DB2—is gaining ground daily.

Relational DB Preferred

Among minicomputer and PC users, the relational DB is generally preferred over network and hierarchical types. It is easier to understand, offers more application tools, and can be more conducive to organizational changes. Mainframe users, on the other hand, may still find a hierarchical DBMS program like the IMS or VAX/DBMS more practical.

Another new wrinkle in DBMS, according to Mr. McLarnon, is the ability to store text and images. That is why many vendors are introducing imaging packages for mainframe, micro and PC environments.

Bob Bascom of Wang Laboratories is one who believes that the integration of data, text, image and voice will be a key element of most DBMS systems in the 1990s. "In the 1970s, database products



Professional Application Creation Development (PACE) is an integrated management environment for Wang's VS system. With it, users need no programming.

The mistakes you could make are enough to fill a free, 20-page book.

THE AT&T GUIDE FOR NEW, MOVING, AND GROWING BUSINESSES

Telecommunications made easy



Why learn telecommunications the hard way, when the easy way won't cost you a thing?

This **free** AT&T Guide will help you avoid a multitude of costly mistakes.

Throughout these helpful pages, you'll find the right questions to ask, worksheets and checklists. Even a step-by-step timetable for companies that are planning to move.

The guide is written in plain English. It replaces confusion and uncertainty with clear, concise information and a proven framework for decision making.

You'll also find an overview of the proven solutions of AT&T. Equipment and services that work together to get you the most for your telecommunications dollar.

Send for your free copy of The AT&T Guide. Just fill in and mail the coupon. Or, if you have an immediate need, call toll free: 1 800 222-0400, ext. 897.

FREE AT&T GUIDE

☐ **Yes**, I want to avoid learning the hard way. Please send me my free copy of The AT&T Guide.

Name _____ Title _____

Company _____

Address _____

City/State/Zip _____

☐ Please have a local AT&T Sales Representative call me right away.

My telephone number is _____
(Business)

To help us better serve you, please complete the following:

My business expects to open/move/expand within the next _____ months.

Note: Limit one guide per business. Please allow 4-6 weeks for delivery.

Please send this coupon to:

The AT&T Guide, P.O. Box 7401, London, KY 40742-9978



8971

were used primarily to build, rebuild and rewrite basic operational kinds of applications like payroll and general ledger," he explains. "As we moved into the 1980s, the database came to be used more for decision-support kinds of activities, where you have middle managers accessing the corporate database to get information.

"In the 1990s," Mr. Bascom adds, "I believe we will see a new class of applications being built that really bring together diverse forms of information and make it available to the knowledge worker."

An executive preparing a speech on the subject of SQL, for example, would make a query at his office work station to search through a literature database on the subject. The DBMS may locate articles that have been scanned into its database from THE OFFICE, an R&D whitepaper, or other source. These may be studied at the work station or printed-out into hardcopy.

"We're looking not just at data databases, but also information databases," says Mr. Bascom. "That seems to be the way the industry is moving."

If he is correct, Wang's DBMS prod-

uct is in a good position to compete for its share of that market. Dubbed PACE, for Professional Application Creation Environment, the program allows users to generate and customize their own application programs without programming. PACE interfaces with business graphics, document processing, spreadsheet, electronic mail and mainframe data.

"A lot of our customers are starting to build applications that include text and images in standard business environments," Mr. Bascom comments.

Take Care With Upgrades

Managers must plan carefully for upgrades on new DBMS purchases. Faster programs and new functions can save time and money, but it also takes time to learn all of the features and functions of any package, and to begin using them effectively in the office.

The PACE development team at Wang is now working on version 3.0 of its program, due for release in 1990. The new version will have "a lot of goodies," says Mr. Bascom, "but we also want to make sure there's a migration path. When you release a product with a lot

of new capabilities, it's of key importance that you don't create a problem for your former users."

Before acquiring any new software, users should research the program thoroughly in advance. How fast will it search on existing hardware? Or will new hardware be required to obtain optimum performance? Will the program operate in a multitasking environment like OS/2? Or is there an upgrade due out shortly? Upgrades and enhancements can be expected every few years.

Contact the vendor and ask for full product information. Some will offer a demo disk, which should be shared with the office's database manager or employees. Specific questions will undoubtedly arise and can be directed to the vendor's technical staff before a purchase decision is made.

Future DBMS enhancements may include voice recognition querying, expert systems that anticipate quarterly or annual reports, or optical memories. **TO**

MICHAEL HOFFERBER is a Seattle, Wash.-based business and technology writer, and a contributor to this magazine.

LABELING OF THE FUTURE HERE TODAY!



NOW SAVE TIME AND MONEY and free your people for more important tasks! No more missed deadlines—no more laborious peeling and sticking.

The latest labeler from Scriptomatic offers features and benefits only others can dream about and at a price below the cost of many old fashioned electro mechanical monsters!

- * Zip break/bundling capability
- * Batch/total counting features
- * Automatic label positioning
- * Automatic document measurement
- * Envelope/label out indicator/recall
- * Operator prompts on L.C.D.
- * Touch pad controls

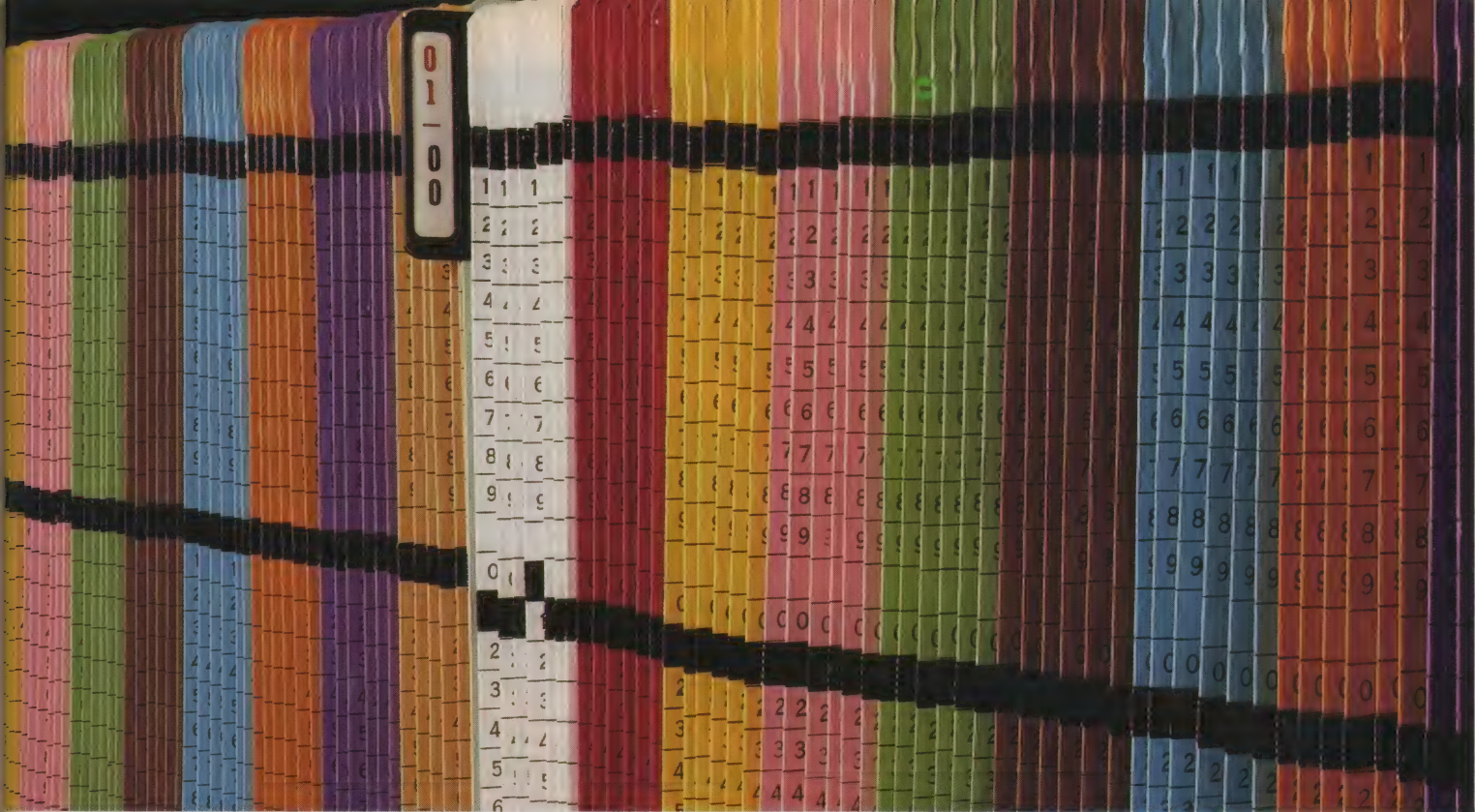
Call today 1-800-323-1249, In Illinois, call 312-949-2571 for the name and address of your nearest dealer. Available only through Scriptomatic authorized dealers.

Scriptomatic Products
Addressing America's Business

Cheshire

A Videojet Company

404 Washington Blvd.,
Mundelein, IL 60060-3190



WITH OUR SYSTEMS, YOU CAN'T MISS A MISFILE.

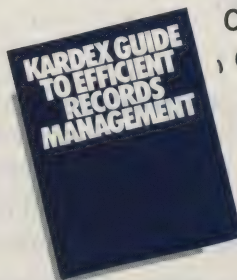
A break in the solid black guideline signals an out-of-place file.



Kardex color-coded file folder systems make misfiles easy to spot by combining color and a horizontal guideline. Available in both alphabetic and numeric systems, they make filing faster, retrieval easier, mistakes practically impossible—

and reduce out-of-file searches by 90%.

For more information on Kardex color-coded file systems, call or write for a free copy of our "Guide To Efficient Records Management."



KARDEX®

P.O. Box 171, Marietta, Ohio 45750 1-800-848-9761, Ext. 330
(In Ohio 1-800-282-9556)

Get
Redi
to play the

Redi-Tag[®] Redi-TO-GO[®]

INSTANT WINNER GAME

GRAND
PRIZE:

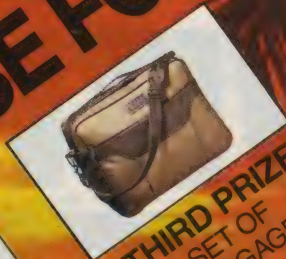
WIN A SPECTACULAR CARIBBEAN CRUISE FOR 2



FIRST PRIZE
SONY
CAMCORDER



SECOND PRIZE
CANON 35mm
SLR CAMERA



THIRD PRIZE
SET OF
LUGGAGE

DETAILS IN Redi-Tag[®] PACKAGES

Signature - President

Signature - Vice President

SIGN HERE

SIGN HERE

Redi-Tag[®]

Spending time (and money) making sure documents are complete? Redi-Tags[®] are just what you need! They're adhesive on only half the back of the tag, and they're removable. Redi-Tags come in 16 bright colors and 3 sizes. Put Redi-Tags to work today!

Contact your local office supply dealer or call 800-421-7585.



DATA PROCESSING PRODUCTS

New Equipment in Automation

Dot Matrix Printer

Mannesmann Tally Corp., 8301 S. 180th St., Kent, Wash. 98032, debuts the MT81 dot matrix printer that offers bidirectional draft speed at 130-cps. Near-letter-quality speed is 26 cps using a combination of dual pass and micro-stepped paper advancement. Features advanced paper-handling and standard friction and tractor feed, as well as paper parking so user can keep computer form paper in the printer while simultaneously printing on a single sheet. Unit employs



nine-needle printhead technology designed for light-duty workloads up to 1000 pages-per-month. Standard configuration includes IBM proprinter and Epson FX 80/85 emulations and a Centronics parallel interface. Options include a 32K random access memory (RAM) buffer, single-bin sheet feeder, serial RS232 input-output. **For More Information Circle No. 243.**

Laser Printer Cartridge

Pacific Data Products, 6404 Nancy Ridge Rd., San Diego, Calif. 92121,



debuts its 25-cartridges-in-one font cartridge for laser printers. Cartridge com-

bines fonts available on all 25 Hewlett-Packard font cartridges into one. Unit is compatible with the HP LaserJetPlus, LaserJet 500, LaserJet 2000, LaserJet Series II, Canon LBP-8II and the Olivetti-PG108. Includes fonts that are compatible with the entire line of HP LaserJet cartridges, including HP's expanded S1, S2 and Z. Cartridge features portrait and landscape modes of Helvetica, Times Roman, Courier, Prestige Elite, Times Math, Times Pi, Letter Gothic and more. **For More Information Circle No. 248.**

Microcomputer

Amstrad Inc., 1915 Westridge Dr., Irving, Texas 75038, introduces the PC2086 fully-featured microcomputer

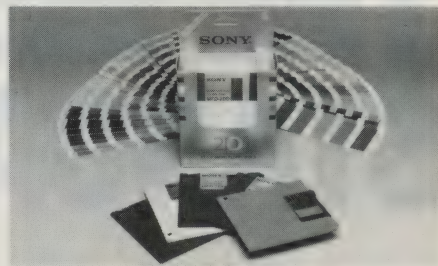


for use as a stand-alone system or as part of a large multiuser network. Unit comes with MS DOS 3.3, 640 K memory, high-level VGA graphics capabilities, mouse, and choice of monitors. Has an 8086 16-bit main processor running at 8 Mhz, and comes with either one or two 3 1/2", 720 Kb floppy disk drives or with an optional 30 Mb hard disk using 1:1 interleaving. External adapter is built in to accommodate users with data stored on 5 1/4" floppy disks. Unit includes AT-style 101 key, keyboard, built-in floppy disk controller, RS 232C serial port, bidirectional parallel Centronics port, mouse port and Microsoft Windows Version 2.03. Unit prices start at under

\$1500. **For More Information Circle No. 247.**

Color Diskette

Sony Corp. of America, 9 W. 57th St., New York, N.Y. 10019, introduces the color 3.5-inch floppy disk. Comes in



red, yellow, blue, green and white for devising custom color-coded file systems. A pack of 10 costs \$39.99. **For More Information Circle No. 244.**

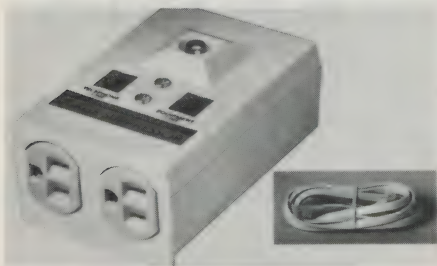
Small Footprint Scanner

Microtek Lab., Inc., 16901 S. Western Ave., Gardena, Calif. 90247, unveils the MS-II sheet-fed scanner with built-in 50 page automatic document feeder designed for high-volume text scanning and PC-facsimile transmission. Unit is designed for the IBM PC, PS/2 and Macintosh environments. For use in desktop publishing, it uses single bit-per-pixel dithering patterns to create up to 64 shades of gray when scanning photos. Lets user choose from 196 different brightness and contrast settings, along with 12 different halftone dot patterns. Unit also features selectable resolution settings from 75 dpi to 300 dpi, along with 16 scaling choices from 100% to 25%. **For More Information Circle No. 250.**

Power Controller

Perma Power Electronics Inc., 5601 W. Howard Ave., Chicago, Ill. 60648, unveils the Model PTD 209 fax-line surge

suppressor to protect facsimile equipment or computers with modems. Unit



guards against surges on the power line and phone line which can cause garbled

messages, no-connect errors and unnecessary retransmission and reconnects. Protects in all three modes in which surges travel on power lines, the normal mode and both common modes. Unit offers valuable protection of fail-safe automatic shutdown, a patented circuit which disconnects equipment if the power line surge suppressor element wears out or burns out from handling large or repetitive surges. Comes in a tan plastic case and is supplied with a seven-foot patch cord. It costs \$59.95. **For More Information Circle No. 277.**

Computer Work Station

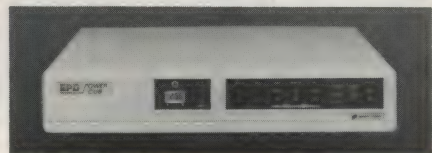
Ergotron Inc., 3450 Yankee Dr., Eagan, Minn. 55121, introduces a PC work station that reclaims usable desktop space by suspending the monitor and processor above the desktop with a hydraulic radial arm. The free-standing work station sits alongside or behind a desk and pro-



vides a suspension system and shelf area. The arm provides 6" vertical, 20" horizontal and 180-degree movement. It also features tilt/swivel assembly. Unit is suited for any 12"-19" monitor weighing 17-65 lbs. It costs \$530. **For More Information Circle No. 279.**

Power Control Device

Electronic Protection Devices, Inc., 1045 S. East St., Anaheim, Calif. 92805-8508, unveils the Power Cub uninterruptible power supply unit designed for easy installation between computer and monitor. Provides immediate and



complete protection of valuable data from blackouts, brownouts, voltage transients and noise interference. Unit's built-in hardware permits operation in conjunction with the optional EPD Eversafe software package. Unit features a compact, slimline design; convenient power director switches for all system peripherals; a lamp for keyboard illumination; LED indicators for mode of operation; load level and overload; telephone line transient voltage protection for a modem, and built-in hardware to interface with optional Eversafe software. Installs vertically on the floor next to a computer, as well as underneath a monitor. Unit is available in a 300VA model that weighs 30 lbs., and a 550VA model of 36.4 lbs. Operator can turn on

THE INDUSTRY STANDARD...



When it comes to power protection for your office equipment, the choice is clear...the SL Waber Datagard line.

Choose Datagard Silver for basic surge protection • Datagard Gold for office grade surge and noise protection • Datagard Platinum for industrial grade surge and noise protection • Even Datagard Gold Plus for fax machines and modems.

Datagard products are sturdily constructed of materials that mean excellence, like durable steel and advanced electronic components. Plus they are fully tested to UL 1449 standard and are backed by a lifetime warranty and the finest protection policy in the industry.

All of your electronic equipment needs power protection, so use the best. SL Waber. We set the standard. Everybody else tries to measure up.

520 Fellowship Road • Suite 306
Mount Laurel, NJ 08054
800-634-1485. 609-866-8888.



WABER, INC.

A Subsidiary of SL Industries, Inc.

"If you're in the market for a copier, allow me to introduce myself."

—David Sadler
Chairman, Savin Corporation



I'm David Sadler. Chairman of Savin Corporation.

Enough about me.

Savin is the third largest mid-volume copier company in the country.

That's third out of 15. Number one in 11 states. And in Canada, we place more copiers with federal and

local governments than all our competitors combined.

All this probably sounds pretty good to you.

Personally, it ticks me off.

I won't be happy until Savin is the first company you think of when thinking of copiers.

To make that happen, we have to

prove to you that our machines are better than everyone else's.

I think they are.

Not only do we offer everything from copiers that just copy, to ones that reduce, enlarge, collate, copy on two sides, in color, you name it. We're also the only company that offers you the option of liquid technology. It's been proven to be more reliable.

We have a full line of fax machines, too. Any one of which can save you time and money.

And there are over 300 Savin dealers and branches around the country. So when you need parts or servicing, we're always right around the corner. No matter what corner you're on.

We can even help with financing. Through our Savin Credit Corporation.

Want to find out more? Just call 1-800-52-SAVIN for the authorized Savin dealer in your area.

I think you'll be very satisfied. Because frankly, I'm not.

Savin Corporation,		420
335 Bishop Hollow Road,		
Newtown Square, PA 19073.		
I'm interested in learning more about Savin copiers and fax machines.		
Name _____		
Title _____		
Company _____		
Address _____		
City _____	State _____	
Zip _____	Phone (____) _____	

savin

See us at FOSE at booth 318

and off selected components of the system from unit's control panel. Model PC-300 costs \$699; PC-550 costs \$898. **For More Information Circle No. 280.**

Computer Furniture

Case Products International, Box 1500, Madison Square Station, New York, N.Y. 10159, unveils computer furniture that puts everything from the keyboard



to the printer to the computer screen at correct position. One unit of furniture replaces three or more units of standard furniture, saving office space and money, the company claims. **For More Information Circle No. 281.**

Scanning System

Desktop Technology Corp., 986 Man-
grove, Sunnyvale, Calif. 94086, intro-
duces the SX-1000 scanning system for

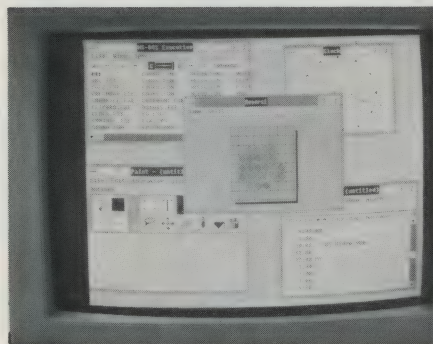


most Epson dot matrix printers sold since 1980, and FX and LQ models. Unit converts printer to a scanner by swap-

ping the user replaceable Epson print-head of all Epson FX, MX, RX, FX86e and LQ model printers with a molded scanning head. Conversion from printer to scanner and back to printer takes under a minute. System provides eight levels of gray scale extended with a user brightness adjustment, software brightness and contrast control, and a zoom function. Scanned data may be saved as raw data, gray scale file and/or as any number of picture files. System lets user digitize hard copy drawings and photographs into disk files that can be imported into most popular desktop publishing application programs and many graphics editing applications software. **For More Information Circle No. 249.**

Video Card

US Video, 62 Southfield Ave., Stamford, Conn. 06902-9950, unveils the Recordable VGA card that transforms an IBM PC/XT/AT or compatible into a complete desktop video system. Broadcast-quality video output offers complete recordability of VGA text and graphics on a VCR. Card can produce standard



NTSC video signal in addition to the IBM standard VGA signal, enabling the user to take advantage of VGA's high-resolution, multicolor capability in producing professional-quality desktop video presentations. Unit is IBM compatible at the BIOS and register levels and supports a variety of resolution modes, including 640 by 480 in 256 colors, and 800 by 600 in 16 colors. **For More Information Circle No. 246.**

Forms Printers

Texas Instruments, Inc., Data Systems Group, Box 181153, DSG-240, Austin, Texas 78718, introduces the OMNI 800 Models 8930 and 8920 printers designed for high-volume, multipart forms processing and general-purpose business printing. Both print 6 to 9-part forms at up to 400 cps using an 18-pin printhead.

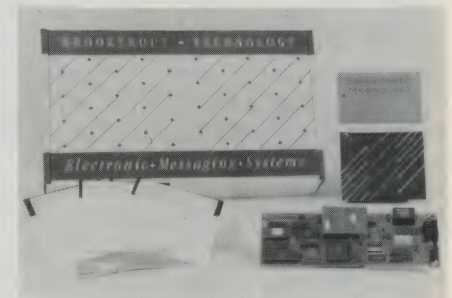
Automatically adjust to a document's position and thickness, through features respectively known as Page Finder and Z-axis Control. In addition, Model 8930 offers cut-sheet document processing and standard color printing. Interactive control panel provides ease of use of a personal printer, with operator touching one of the Power Touch display keys to activate a two-line by 16-character LCD that presents such options as communi-



cation parameters, print intensity and font styles. Three print modes are high-speed draft (400 cps), text quality (200 cps) and letter quality (100 cps). Seven-color printing is standard on Model 8930 and optional on Model 8920. Both come with RS-232 serial and Centronics-type parallel interfaces. **For More Information Circle No. 282.**

Facsimile Board

Brooktrout Technology Inc., 110 Cedar St., Wellesley Hills, Mass. 02181, introduces the Fax-Mail 96, Version 1.1 fully-functioned add-in board that features broadcast sending, available LAN support on networks from Novell, 3Com and others, letterhead and signature availability, improved text editing capa-



bilities, and remote printer capture. Another key feature, the company claims, is the embedded coprocessor which lets it send and receive fax "in the background," rather than requiring the computer to get involved. It costs \$599. **For More Information Circle No. 251.**

Local Area Network

Networth Inc., 8101 Ridgepoint Dr., Irving, Texas 75063, offers the vLAN +



Twice The Bytes

New InterFont™ cartridges from Intercon Associates are first to take font storage to 1MB.

Now you can double your type quantity and still get typeset quality. Without the confusion of cartridge swapping. Without taking a bite out of your budget.

You can assemble complete font families in a single cartridge.

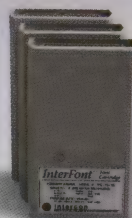
You can free up valuable RAM for graphics and logos.

You can save time with instant font availability.

InterFont cartridges provide bit mapped fonts from the Bitstream® library of typefaces.

Each of six models is suitable for many Hewlett-Packard and other laser printers using Canon CX and SX engines.

Twice The Information



For more information on compatibility and available type styles, font sizes and faces, call 800-422-3880. Or send your business card to Intercon Associates, Inc., One Cambridge Place, P.O. Box 18099, 1850 Winton Rd. South, Rochester, NY 14618.

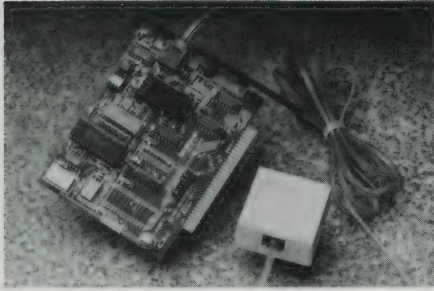


INTERCON

Intercon Associates, Inc.

InterFont is a trademark of Intercon Associates, Inc. Bitstream is a registered trademark of Bitstream Inc. Hewlett-Packard is a registered trademark of Hewlett-Packard Corp. Canon CX and Canon SX are registered trademarks of Canon Corp.

which handles up to 64 work stations and combines with most versions of the



Advanced NetWare operating system. Unit uses twisted-pair cabling, and boasts a transmission rate of 820Kb per

second. Throughput is 75Kb per second. **For More Information Circle No. 245.**

Computer Facsimile Gateway

Fax, Inc., 8901 Kanis Rd., Little Rock, Ark. 72205, unveils the MaxFax computer facsimile integration unit for the IBM System 3X and AS/400. User can send information to any Group III facsimile machine from a 3X terminal. Unit emulates an IBM 5256 printer and works with any system that supports it. No additional software is required on the host system. Produces laser printer quality and automatic reduction of 11" x 14"

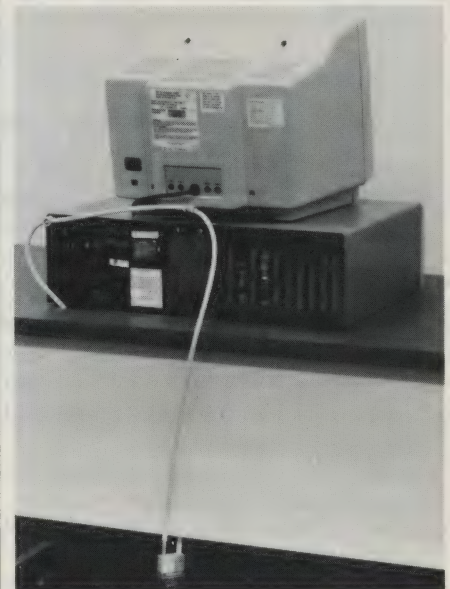
documents at the receiving machine. Includes document storage of more than 500 pages, automatic requeuing, complete document configuration, broadcasting to more than a thousand loca-



tions, assignments of individual user ID's with passwords, and more. Unit can send purchase orders, quotations, query reports and customer acknowledgements. Base price is \$5995. **For More Information Circle No. 283.**

Machine Security Device

McDonald/Ford International, Inc., 4001 N. Ocean Blvd., Boca Raton, Fla. 33431, introduces the Kablit security system for office equipment and machine security. Unit consists of vinyl-coated steel cable with a keyed, removable cylinder master lock and hex nuts. Unit installs with a screwdriver. It is suited for computers, typewriters, copy-



ing machines, keyboards, printers, monitors, laser printers and fax machines. **For More Information Circle No. 284.**

BRET FORD SUPPORTS YOUR COMMUNICATIONS

FREE!

The 1989 Bretford Buyer's Guide

Featuring:

- Real wood furniture for office, computer and home electronics
- Hard-to-find presentation products for training and education
- Specialty furniture for desktop publishing, computer overhead projection, and fax equipment
- The most requested video support furniture in the world
- Microcomputer furniture for every application, and for every budget



Bretford Manufacturing, Inc.
9715 Soreng Avenue Schiller Park, IL 60176
312:678.2545

Call or write to receive our FREE full-line Buyer's Guide. It's filled with ideas to help you support your communications.

The Office Offenders



The Office Protectors

Anti-Theft

A thief may think pierced ears make him look really tough. But the ear-piercing sound of a 98-decibel alarm is sure to make any would-be criminal run for cover. Wilson Jones Electronic Anti-Theft Alert protects all computers, printers, or up to five other pieces of any type office equipment by linking them in an electronic network. Once activated, the removal of any one of the Sensors or cutting any wire triggers a disarming alarm that's about as loud as a jackhammer.



Anti-Surge

The lights dim, then they glow extra bright for just a moment. It happens all the time. In all seasons. In bad weather and good. Three times or more every single day. The dreaded power surges & spikes are out there lurking, ready to strike personal computers, office copiers and facsimile machines. But fear not, it's Wilson Jones Surge Suppressors to the rescue. Protecting you from power surges, power spikes, radio frequency interference and other annoying line noise.



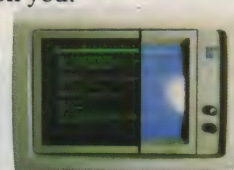
Anti-Static

You get enough static on the job without passing it on to your electronic equipment. Aside from being a hair-raising experience, static can do permanent damage to delicate microcircuitry. Wilson Jones Dissipative Mats put an end to static charges, in less than a second, and keep equipment running safe and sound. That's because they're made of two outer conductive vinyl layers and a middle layer of carbon, so the mats collect and drain off static.



Anti-Glare

The sun is nice for tanning the skin. But glare is the last thing you need when you work with a monitor all day. Wilson Jones Easy Screen Optical Filters not only eliminate CRT screen glare, but they sharpen and enhance monochrome or color images. Eliminating eye-strain, headaches and muscle tension. They're easy on your eyes, easy to attach, easy to maintain, easy to live with, and easy on your budget. And that's a nice reflection on you.



See your office products dealer for more information on the Wilson Jones Electronic Security and Protection Systems.

Wilson Jones®
Office Products

Circle Reader Service Card No. 271



This little piggy loves MicroFax.

Because MicroFax™ from Datacopy lets you turn your PC into a fax machine for only \$695. A fraction of what stand-alone machines

cost but with the same sophisticated fax capabilities. And that makes MicroFax the smart solution for the fax needs of any PC owner.

SIMPLICITY

MicroFax is simple to use. It's an add-on fax board for the PC which sends and receives documents worldwide at 9600 bps no matter what you're doing, because MicroFax operates unattended. Plus it works simultaneously while other programs are



running, so valuable work time is never wasted.

SOPHISTICATION

MicroFax is the first true integration of fax and PC technologies. Now, you can communicate text, graphics and computer files to and from computers and fax machines with a 1200 baud Hayes® compatible ASCII modem.

Moreover, you can transfer computer files between PCs in considerably less time at 9600 bps.

In total, that's a powerful line of communication.

BYTE MAGAZINE

And we're not the only ones who think so. Recently BYTE Magazine reviewed the Datacopy MicroFax and judged it:

"...the standard against which to measure other PC fax cards."

MicroFax Datacopy's MicroFax is the standard against which to measure other PC fax cards. MicroFax's documentation is straightforward, and Datacopy seems to have a clear idea of the proper role of a fax card. After crawling through thousands of pages of documentation is what you get apart from the main text by italics.

So consider MicroFax the most sophisticated and convenient

fax card available. And you'll love us for more than just the money.

For more information, call Datacopy direct at (800) 821-2898.



DATACOPY
A Xerox Company

MicroFax is a trademark of Datacopy Corporation. All other product names are trademarks or registered trademarks of their respective holders.

SOFTWARE DEVELOPMENTS

Software Support

Uniforce Temporary Services, 1335 Jericho Turnpike, New Hyde Park, N.Y. 11040, has created an Office Automation (OA) 800 Templine that provides software support to its temporaries on assignment. Hotline offers fast access to office automation coordinators who will answer questions on word processing functions. **For More Information Circle No. 234.**

Payroll Program

Phoenix Phive Software Corp., 7830 East Gelding Dr., Scottsdale, Ariz. 85260, presents Payroll, Version 2, for automating weekly, biweekly, semi-monthly or monthly payrolls for up to 200 employees. Program accommodates hourly and salaried personnel, and features eight earning categories plus tips and up to seven deductions. Calculates Federal, state, FICA, disability insurance and city withholdings. Maintains personnel history data and prints W-2 forms and quarterly reports. It also handles 401(k) deferred compensation. Accepts time entered as hours and minutes, or hours and fractions of hours. Includes user-modifiable tax tables for 50 states, the District of Columbia and New York City. Requires IBM PC or compatible microcomputer with 256K available memory, one or two floppy drives, or one hard disk, monitor, parallel printer capable of printing 132 characters in condensed or normal mode, and MS or PC DOS 2.0 or higher. Costs \$95. **For More Information Circle No. 240.**

Forms Processing Software

North Winds, One Northgate 2 Garden Center, Greensburg, Pa. 15601, presents Formall software for processing most common office forms using a two-color multipurpose form or blank paper. Program performs mathematics required to complete the form and maintains a database of customer/vendor information. Includes templates, batch processing capabilities and 10 user-definable macros. Compatible with most printers. Requires MS-DOS 2.0 or higher and 512K RAM. Costs \$79.95. **For More Information Circle No. 261.**

Keyboard Overlays

Ideal-Jacobs Printing & Engraving Co., Inc., 737 Northfield Ave., West Orange, N.J. 07052, offers customized plastic keyboard overlays to simplify training on new software and software upgrades. Overlays indicate function key commands, special key designations and information related to custom software. Available in a range of colors to accom-



modate company logos and specific software commands. Compatible with IBM, AT&T and compatible keyboard configurations. **For More Information Circle No. 266.**

Mailing List Program

Hypergrowth International, 180 Steeles Ave. West, Thornhill, Ontario, Canada L4J 2L1, has developed Maillist application software that stores, organizes and prints labels and customer records. Offers unlimited file capacity, postal and zip code verification for major U.S. and Canadian cities, and user-defined categories, reports and labels. Program also performs searches by company, category, name, postal code or date of entry and provides customized form letter capabilities. Runs on IBM PC, XT, AT, PS/2 or compatibles. A LAN version also is available. Costs \$99. **For More Information Circle No. 262.**

Facilities Management Program

Infortext Systems, Inc., 1067 E. State Parkway, Schaumburg, Ill. 60173, introduces the Peruse Telecommunications Facilities Management Control System for computerizing telecommunications equipment inventory and work order management. Functions include cost allocation, cable and wire manage-

ment, telephone directory maintenance, vendor performance evaluation, purchasing support, trouble/incident reporting, budget variance analysis and trouble call management. Runs on most PCs and can operate as a stand-alone system or can be integrated with vendor's OS call accounting system. **For More Information Circle No. 265.**

Office Automation Program

WordPerfect Corp., 1555 N. Technology Way, Orem, Utah 84057, introduces WordPerfect Office, an office automation program for PC LANs. Software streamlines interoffice communication by allowing network users to exchange mail, files, telephone messages and appointment schedules. It combines its library programs, including notebook, calendar, file manager, macro and program editors, calculator, and shell with electronic mail and scheduling programs. Costs \$495 for the file server and \$150 for each additional station. **For More Information Circle No. 274.**

Statistical Analysis Program

New England Software, Greenwich Office Park #3, Greenwich, Conn. 06831, has developed GB-Stat statistical analysis/data management program with integrated graphics. Menu-driven program directly imports Lotus PRN, DIF and ASCII files created on most spreadsheet and database programs and automatically converts them to its own format. It allows user to import data from Lotus 1-2-3 or dBase and immediately run statistical data analysis. Results can then be graphed from within the software's menu system. Costs \$299.95. **For More Information Circle No. 438.**

Caller ID Program

Software Studios, Inc., 8516 Sugarbush, Annandale, Va. 22003, makes Caller Line Identifier, a memory-resident software program that monitors incoming telephone calls. Indexes caller's telephone number to display name and associated information, even before phone is answered. Runs on IBM PCs and compatibles. Costs \$99. **For More Information Circle No. 440.**

NEW PRODUCTS

For more information on any of the items described on these pages, circle appropriate number on reader service cards at front and back of this issue.

Mid-Volume Copiers

Eastman Kodak Co., 343 State St., Rochester, N.Y. 14650-0518, provides the Ektaprint 90 (shown) and 90E copiers with a feeder that accommodates single or double-sided originals up to 11" x 17", and automatically feeds mixed weights and sizes. Units produce 50 pages a minute and offer zoom reduction and enlargement from 50% to 200%. Main paper deck holds 2000 sheets of letter-size paper, and a dual-cassette system holds 250 sheets of legal-size paper



and 250 sheets of ledger-size paper. A manual feed tray supplies 50 sheets of company letterhead or transparencies. Image editing functions allow users to delete text, frame an area with blank space, adjust margins and edges, and delete photos or graphics from an original. An AccentColor feature, standard on the 90E and optional on the 90, adds red or blue highlights to copies via image-editing board and cordless pen. Model 90 costs \$15,990; Model 90E is \$16,990. **For More Information Circle No. 241.**

Personal Fax

Canon U.S.A., Inc., One Canon Plaza, Lake Success, N.Y. 11042, makes the FaxPhone 15, a facsimile system and telephone with one-touch speed dialing to 12 locations, last-number redial, on-hook dialing, hold button and speaker monitor. Five-page automatic document feeder, fine mode, automatic back-

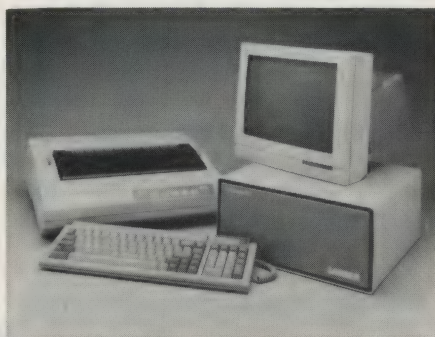
ground control and automatic reception facilitates facsimile transmissions and receptions. Portable unit offers 30-second transmission, weighs less than 9 lbs. and connects to a standard modular tele-



phone jack and an electrical wall outlet. Costs \$1695. An optional carrying case is \$70. **For More Information Circle No. 263.**

Digital Dictation System

Lanier Voice Products Div., 1700 Chantilly Dr., N.E., Atlanta, Ga. 30324, presents the VoiceWriter 800 digital dictation system with multiple access for up to eight users. System allows originators and transcriptionists to access system

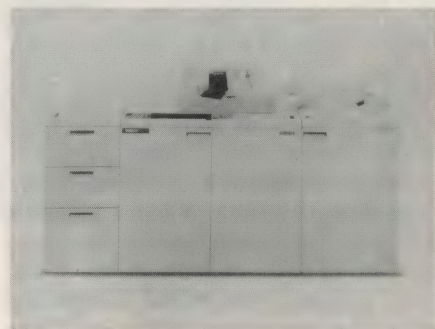


simultaneously. Random access function enables users to quickly identify and access any document in the system. First-in/first-out function allows documents to be transcribed in the order they are entered into system. Verbal insertion capabilities enable users to free space on

the disk for document revisions. Review/edit function accesses documents already on system via user password. An optional management console facilitates document tracking and reporting. **For More Information Circle No. 203.**

Copier-Duplicator

Konica Business Machines U.S.A., Inc., 500 Day Hill Rd., Windsor, Conn. 06095, announces the 7090 RF copier/duplicator with recirculating document handler that feeds up to 50 8½" x 11" to 11" x 17" originals, and automatically inverts two-sided originals for two-sided copying. Automatic sheet insertion al-



lows user to program where dividers or front and back covers are inserted in multipage documents. Includes finisher for offset stacking or stapling and three-hole punching, 4000-sheet paper capacity, zoom magnification and reduction, image shift and automatic exposure selection. Automatic reset, interrupt mode and automatic paper selection also are offered. **For More Information Circle No. 217.**

Facsimile System

Xerox Corp., Xerox Sq. 06B, Rochester, N.Y. 14644, introduces the Model 7011 facsimile system with full-featured desktop telephone with automatic speed dialing. System offers 25-second transmission and one or two-digit speed dialing to 30 locations. A 40-character LCD display prompts users through machine

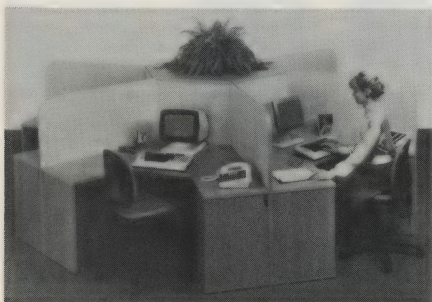
functions. Unit provides voice and facsimile communication in three modes, including automatic receive mode that enables system to answer fax calls immediately, manual receive mode that facilitates manual answering of incoming calls, and auto-answer-delay mode



that allows users to program a machine to answer calls within 10 or 15 seconds while picking up the phone before system answers automatically. Includes 25-page automatic document feeder, automatic paper cutter, and send and receive trays. It costs \$2595. **For More Information Circle No. 237.**

Clustered Furniture

Hamilton Sorter Co., Inc., Box 8, Fairfield, Ohio 45014, makes available Cluster-Core II clustered furniture systems in one to six work station configurations.



Furniture features a nonacoustic panel design for use in single function environments. Available in walnut, oak and cherry woodgrains, and putty or dove gray finishes. **For More Information Circle No. 200.**

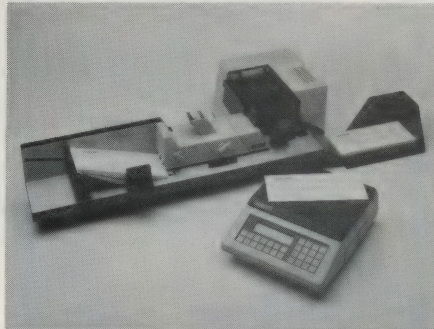
Bond Paper

Hammermill Papers, 6400 Poplar Ave., Memphis, Tenn. 38197-7000, offers a portfolio called "This Laser Paper Got

Its Start in 1912," which demonstrates the capabilities of its reformulated bond paper. Sheets feature xerographic properties for enhanced performance on laser printers and copiers. Six inserts illustrate offset lithography, xerography and laser printing applications, and a range of combinations. Includes six samples of its 17 colors, including white, ivory, gray, plum, peach and steel blue. **For More Information Circle No. 596.**

Mailing System

Friden Alcatel, 30955 Huntwood Ave., Hayward, Calif. 94544, introduces the 9130 electronic mailing system that automatically meters, seals and stacks up to 100 envelopes per minute. System ac-



cepts mail pieces up to 1/4" thick and has a modular design that allows users to add accessories as needed. Options include a power feed, power stacker and electronic scales for rate shopping. **For More Information Circle No. 204.**

LCD Panel

Elmo Mfg. Corp., 70 New Hyde Park Road, New Hyde Park, N.Y. 11040, announces the ED-400 Data Presenter for automatic and precise overhead screen projection of computer-generated data from IBM PCs or compatibles. System



is compatible with conventional overhead projectors, and provides 400 hori-

zontal line resolution and .05-second response time. Panel is 12 1/2" wide x 12" high x 1" deep and weighs under 4 lbs. Includes wireless remote control. **For More Information Circle No. 211.**

Message System

Creatron, Inc., 504 Cherry Lane, Floral Park, N.Y. 11001, announces the Video Message System that allows secretaries to visually communicate telephone caller information to an executive. System features a video transmitter and video monitor. To communicate, secretary



writes message on pad, accesses switch and presses alert buzzer. Message is then displayed on a 4" screen. To accept call, executive accesses green button and green light flashes at secretary's desk; to take message, executive presses red button. **For More Information Circle No. 252.**

Voice Processing System

Dictaphone Corp., 3191 Broadbridge Ave., Stratford, Conn. 06497-2560, makes the Digital Express System 3000, a voice processing system with dictation and voice mail capabilities. Random access digital technology stores information on hard disk in a verbal format. System allows users to communicate with their office 24 hours a day by providing instant phone-in listening access to recorded reports or messages from remote locations. Advanced editing functions enable users to edit documents or messages by inserting or deleting information directly from computer memory. System includes dictate station with display that informs users when they have

messages in system and identifies name of sender, and time and date each message was recorded. Includes editing capabilities, and six, eight or twelve hours



of storage in a four-port configuration. Costs from \$14,000 depending on configuration. **For More Information Circle No. 214.**

Paper Shredders

Wilson Jones Co., 6150 Touhy Ave., Chicago, Ill. 60648, offers cross-cut and strip-cut (shown) shredders with automatic start and stop, continuous run, solid state circuitry, warning lights and audible alert. Thermally-protected motor prevents overload and offers quiet

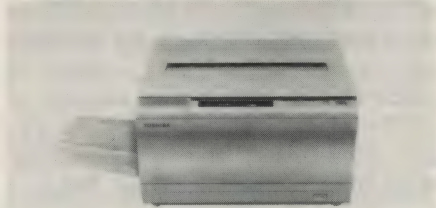


operation, company claims. Four cross-cut models that reduce material to unconstructable parts and four strip-cut models that shred data into 1/8" strips are available. **For More Information Circle No. 239.**

Desktop Copier

Toshiba America, Inc., 9740 Irvine Blvd., Irvine, Calif. 92718, announces

the Model BD-3810 desktop copier with front-loading 250-sheet paper cassette. Unit produces 12 copies a minute and offers color copying in red, blue or



brown. Single-sheet bypass allows copying of odd-sized sheets and paper weights. Includes automatic-controlled exposure and manual-slide control. **For More Information Circle No. 222.**

Forms Imprinter

Moore, Inc., 1205 Milwaukee Ave., Glenview, Ill. 60025-2496, is marketing the Model 5510 continuous-forms imprinter that performs imprinting, vertical



folding, midform slitting, interstacking, refolding and synchronized feeding into a detacher for additional processing. Designed for use with heat-seal forms and vendor's SpeediSealer system when signatures, postal indicia or other fixed imprints are added to forms prior to distribution. System imprints and folds forms, then feeds them to a detacher unit. It also operates as a stand-alone system, and accommodates up to 14"-deep forms. Includes interchangeable print shafts and printing plates. **For More Information Circle No. 206.**

Fax Accessory Kit

Murata Business Systems, 4801 Spring Valley Rd., Dallas, Texas 75244, introduces the Faxcessory Care Kit for routine facsimile system maintenance.

Kit is packaged in a box with handles, and includes a surge protector, 12 oz. can of CareDuster compressed air to remove dust and lint from hard-to-reach areas, a 1 oz. tube of CleanCare solution



and CleanCare wands. A 4 oz. pump spray of Case and Cabinet Care and 25 nonresidual wipes for cleaning exterior machine surfaces also are included. Costs \$29.95. **For More Information Circle No. 231.**

Facsimile Paper

Paper Manufacturers Co., 24 Triangle Park Dr., Cincinnati, Ohio 45246, offers AccuFax thermal facsimile paper retail



rolls with UPC bar coding on each roll for inventory control. Machine compatibility charts are also included on each roll. **For More Information Circle No. 215.**

Facsimile System

Panafax Corp., 10 Melville Park Rd., Melville, N.Y. 11747, presents the UF-260 facsimile system with built-in memory that stores up to 20 pages. Substitute reception function allows received documents to be stored in memory when paper supply is depleted. Transmission reservation enables unit to transmit a document while in receiving mode or

Spectrum copier paper delivers 15 rounds of non-stop action. That's consistency.

Most copier paper can look good for a round or two. But when your workload gets heavy, you need a paper that can go the distance—Spectrum.

Spectrum is manufactured to meet the most exacting standards. As a result it can go toe to toe with even your toughest copying jobs. There's no jamming or curling. Your last copy looks as fresh as your first.

What's more, Spectrum is available in a variety of grades to meet your copying needs. Including Dual Purpose (high-speed and laser xerographic), Hi-Brite and Duplicator/Liquid Toner. Each available in three hole punch and six brilliant colors.

Put the champ to work for you. Spectrum. The copier paper that's still going strong after 15 rounds of action. For the Spectrum Paper Merchant nearest you, call our new toll free number 1-800-526-6640.



Spectrum beats the others to a pulp.

Georgia-Pacific



1-800-526-6640

Circle Reader Service Card No. 486



when transmitting a document from memory. Includes 12-second transmis-



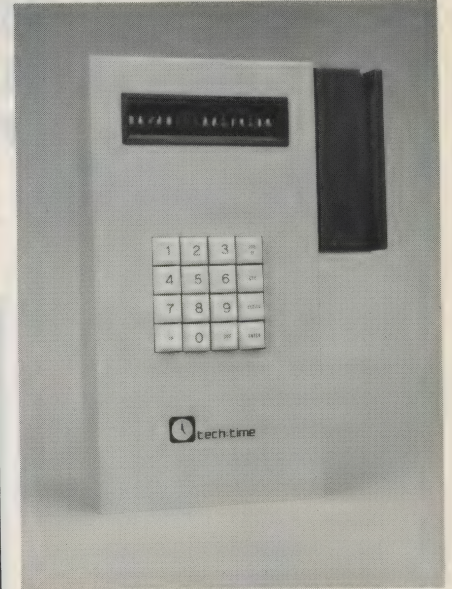
sion, 100-station autodialer, error correction mode, confidential reception and

transmission, and built-in handset. A 30-page automatic document feeder, superfine mode and multistation polling also are offered. **For More Information Circle No. 264.**

Copier Control

Tech:Time, 1800 Second St., Sarasota, Fla. 34236, presents Copy:Control, a centralized copier control system that it claims reduces copier production costs from 10% to 50%. System regulates and tracks local or satellite copying operations via a variety of features, including totals by employee, job department and

category. It also provides access control to eliminate unauthorized use, quota limit assignments and cumulative checking, and employee messages. It supports an unlimited number of copiers, clients,



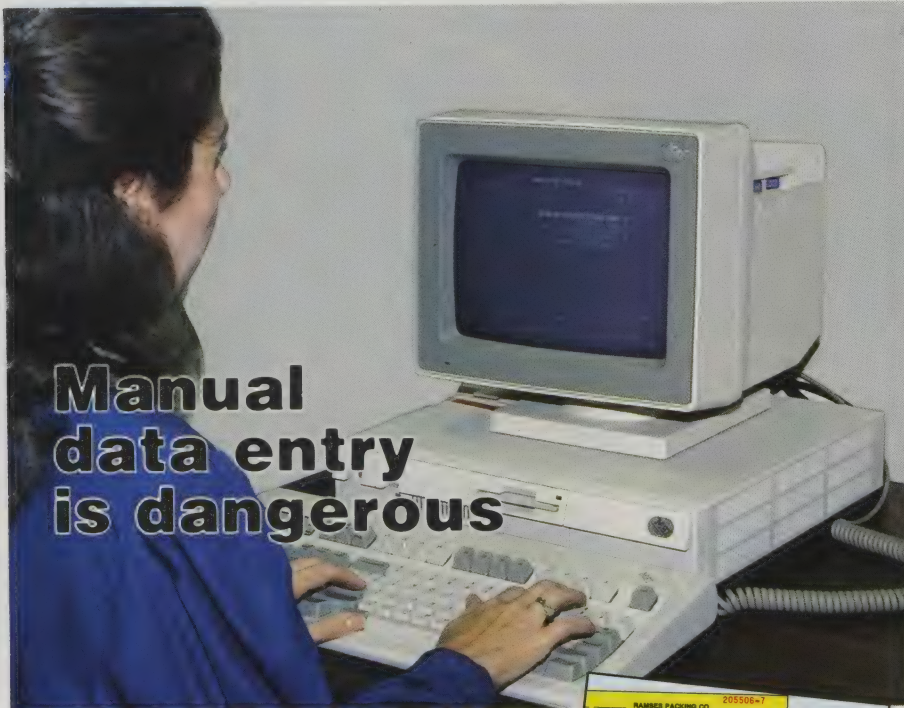
jobs, departments and employees. It also offers multiple security password levels that limit access to confidential information. Runs on a nondedicated IBM PC or compatible. **For More Information Circle No. 235.**

Copy Machine

Minolta Corp., 101 Williams Dr., Ramsey, N.J. 07446-1293, introduces the EP 3120 copier with selecta-color feature for creating two-color copies in black and red, blue, green or sepia. Machine creates 12 black and white or two-color



copies a minute, and provides zoom reduction and enlargement from 50% to 200%. It accepts originals up to 11" x 17" and includes 250-sheet cassette, one-way sizing, and three preset reduction and two preset enlargement ratios. **For More Information Circle No. 201.**



Does data entry ever enter a wrong number? Does your typist ever transpose a consecutive number?

You can prevent the big problems of wrong numbers on crucial data, such as: hospital admissions records, lab tests, bank accounts, product identification, membership records, pharmaceutical lots, shipping addresses....any transaction where data entry operators key in unique numbers to generate computerized documents or procedures.

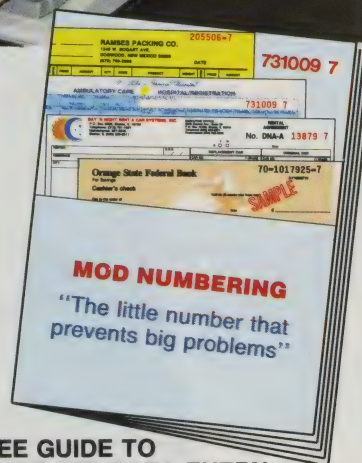


**GENERAL
BUSINESS
FORMS, INC.**

7312 Niles Center road
Skokie, Illinois 60077 (312) 677-1700

Our Forms Command Attention

**SOLD EXCLUSIVELY THROUGH LOCAL AUTHORIZED DISTRIBUTORS
PLEASE CALL 1-800-423-8326 FOR THE NAME OF THE DISTRIBUTOR NEAREST YOU.**



FREE GUIDE TO ACCURATE DATA ENTRY

Explains how MOD numbering guarantees that numbers are entered correctly. Don't let another preventable error occur. Write or phone today.

This Year, The Only Thing The Guys At The 9th Precinct Weren't Able To Bust Was Their Konica Copier.



If you're as tough on a copier as they are, here's a toll-free number you can call to get all the information about Konica's full line of award winning copiers that stand up to whatever you dish out.

Konica. Hardworking copiers for hardworking people.

1-800-648-7130.

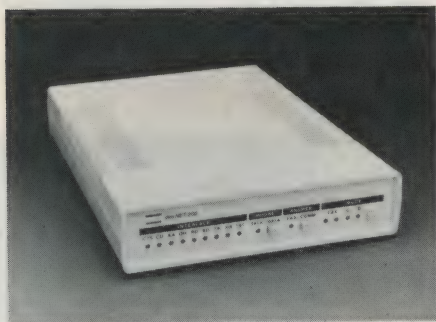
© 1989 Konica Business Machines U.S.A., Inc.



Konica
COPIERS • FAX

Facsimile Modem

Fujitsu Imaging Systems of America, Inc., Corporate Drive, Danbury, Conn. 06810, announces the dexNet 200, an external PC-fax link and 2400 bps data-communications modem. Unit is compatible with a range of operating systems, including Unix, and allows users to transmit documents from a PC to a PC or from a PC to a stand-alone fax. External design enables it to be used with laptop or mainframe computers. It also



can be used for modem pooling, printer sharing and fax server applications, and can serve as a shared resource to a local area network. dexNet 200 costs \$995, and PC 210 software for users using MS-DOS 3.0 or higher is \$299. **For More Information Circle No. 216.**

Graphics Pen

Zebra Pen Corp., 105 Northfield Ave., Edison, N.J. 08817, offers the 0.1 MilliPen for graphic arts and general writing



applications. Available individually or in sets of six or twelve colors. Nontoxic ink is water soluble. **For More Information Circle No. 221.**

Monitor-Keyboards Arm

Horn of America, Inc., 800 Virginia Ave. Plaza, Ft. Pierce, Fla. 34982, introduces the Swivel Glider, a monitor and keyboard arm that rotates 350° for easy viewing. Display and keyboard can be raised, lowered, extended and retracted as needed. Integrated clipboard



secures notes and messages. **For More Information Circle No. 225.**

Laser Printer Stand

Bankier Companies, Inc., 3420 Dundee Rd., Northbrook, Ill. 60062, introduces workspace organizers for laser printers with shelves to accommodate paper, cassette trays, manuals and supplies. Lock-

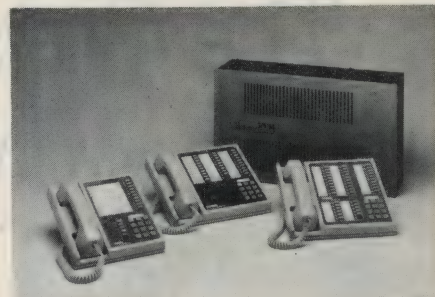


ing drawer offers slotted storage for soft and hard fonts, and program and library diskettes. Made of plastic laminates and wood, unit is compatible with most laser printers. It costs \$149.95. **For More Information Circle No. 224.**

Telephone Systems

Sun Moon Star Group, 1941 Ringwood Ave., San Jose, Calif. 95131, introduces the Solstar DKTS-Plus software-based digital key telephone system. Upgradeable system is ISDN compatible and includes multiple default databases, automatic route selection, speakerphone capability, softkeys and off-premises call forwarding. Supports a range of multi-featured station sets, including 16-button, 30-button and 42-button units.

A 64-button direction station selection module for use as an attendant position also is available. Universal station/line



card slots allow system to be configured with any combination of station and line cards. **For More Information Circle No. 228.**

Stacking File Modules

Abbot Office Systems, 6 Asbury Ave., Farmingdale, N.J. 07727, announces Media Stak stacking file modules for storing and organizing a variety of mate-



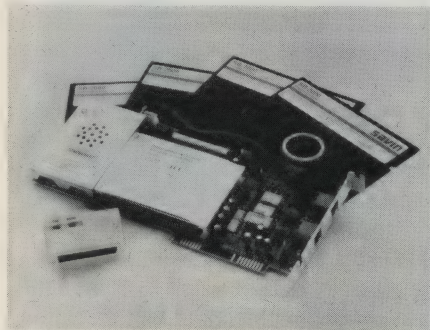
rials from paper clips to data print-outs. Modules are fully enclosed for dust-free storage and come in four sizes. One stack occupies less than 1½ sq. ft. **For More Information Circle No. 212.**

Line-Sharing Device

Call Management Products, Inc., 5550 Burbank St., Broomfield, Colo. 80020, presents Fax LineShare, a device that automates telephone line sharing between voice users and facsimile machines or computer modems in data collection configurations. Unit is recommended for small firms unable to justify the cost of a dedicated telephone line for facsimile transmissions. The shared line enables users to automatically receive fax calls without manually answering each call. Device installs via standard modular telephone line plugs and does not interfere with custom calling features provided by the telephone company. **For More Information Circle No. 207.**

Facsimile Board

Savin Corp., 9 West Broad St., Stamford, Conn. 06904-2270, announces the SB-2000 PC-fax board that facilitates transmission of PC-generated documents to a Group III fax machine, then to an IBM or compatible PC for storage and additional transmission. Allows



users to fax documents from a PC while running another program. It also can poll specific files in a remote PC, automatically print an incoming fax message, and establish a directory of frequently-faxed entries, including name, company, fax number, business telephone number and reference notes. A software program for editing graphics on a PC before transmission and merging graphics with text also is available. It costs \$995. **For More Information Circle No. 202.**

Low-Volume Shredder

Ameri-Shred Corp., Box 46130, Monroeville, Pa. 15146, presents the AMS-40 low-volume paper shredder with a 16"-wide cutting head for destroying 14 7/8"-wide computer printouts. Self-



sharpening tool-steel cutters also shred staples, paper clips and fasteners. Unit accepts 15 sheets per pass and can destroy a 1 ft.-high stack of printouts in eight minutes, vendor claims. **For More Information Circle No. 223.**



FROLIC[®]

RECORDS MANAGEMENT SOFTWARE

Designed and developed by records managers, **FROLIC** incorporates proven records management techniques which allow you to manage your valuable information from the time of creation to final disposition.

FROLIC is an acronym for File Room On-Line Information Control. The PC-based system is fully integrated and flexible, and includes all records management applications.

FROLIC can help your organization:

- *Maintain record security* by limiting access to files
 - *Save space* by regularly scheduling moves to off-site storage
 - *Increase productivity* by better use of staff time
- FROLIC** is a perfect complement to Wright Line's Filing Systems for total records control. To find out how **FROLIC** can assist your records management efforts, call 1-800-225-7348, extension 2331.
- *Manage all of its records* on any media
 - *Increase accuracy and efficiency* through the use of Bar Codes
 - *Decrease the number of misfiled or lost records* using **FROLIC's** on-line tracking functions

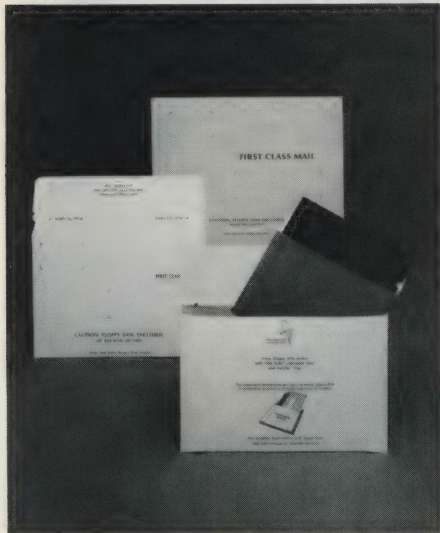
Wright Line

THE FILING SYSTEMS EXPERTS

Wright Line Inc.,
1471 Gold Star Boulevard
Worcester, MA 01606

Protective Mailers

Ames Safety Envelope Co., 12 Park St., Somerville, Mass. 02143, presents mailers that can protect magnetic media from



electronic charges, dust, bending and abrasion. Mailers can be custom-imprinted and are available with or without pink poly-foam liner. **For More Information Circle No. 230.**

Disk Holders

Atapco Office Products Group, 1200 South Stafford St., Washington, Mo. 63090, presents disk holders for storing



and protecting up to 10 disks. Available in 3 1/2" or 5 1/4" formats. **For More Information Circle No. 213.**

uses magnetic stripe cards to control copy machine use. System features a control unit that controls access to each copier in the system and updates card



values as copies are made, an encoding unit that assigns a value to debit cards, and an optional vending unit that allows users to purchase and revalue cards using cash at self-service locations. **For More Information Circle No. 220.**

Copy Controller

Hecon Corp., 15 Meridian Rd., Eatontown, N.J. 07724, makes the KeyCard copy controller, a debit card system that

Labeling System

Heyer, Inc., 1850 S. Kostner Ave., Chicago, Ill. 60623-2383, presents the

If You Can Attend Only One Conference in 1989, Make it



The Office Systems Event of the Year!

- Dynamic educational presentations on current and future technology; management; education/training
- Well known speakers, respected for their keen insights into the field
- Hands on PC software training
- Exhibits from leading vendors
- Training and testing for certification
- International network of peers in the field of office information systems

Invest in your professional success — Attend Syntopican XVII!

Yes! I want to prepare for WORKPLACE 2000 and all of its challenges.

_____ I would like registration information on Syntopican XVII.

_____ Please send information on membership in AISP.

_____ I am interested in exhibit information.

Name _____ Title _____

Company _____ Address _____

City/State/Zip _____ Telephone (_____) _____

Return to:



Dept. 01
104 Wilmot Road, Suite 201
Deerfield, IL 60015-5195
(312) 940-8800 FAX (312) 940-7218

Circle Reader Service Card No. 474



FOR RENT

You don't have to buy a FAX to get all the benefits.

The TransFAX rental program gives you the new FAX you need today with the freedom to trade up or down as your business needs and technology change. With a TransFAX rental, you're never stuck with obsolete or inappropriate technology.

The easy way to get a FAX.
The TransFAX rental program eliminates the need for a capital investment and comes in different term lengths and monthly rates to fit your budget requirements.

Discover our variety, quality and service.

Choose from a full line of FAX units with worldwide compatibility and a host of convenience features. Our units have been proven through years of use by businesses around the world. And with our nationwide service coverage, on-site service is just a phone call away.

Call today. FAX tomorrow.
In U.S.A. 1-800-243-5544
In CT (203) 853-4321
In Canada 1-800-268-0491

The FAX rental company.

TRANS-LUX

Trans-Lux Corporation
110 Richards Ave., Norwalk, CT 06854
Trans-Lux Canada Ltd.
Mississauga, Ontario 1-800-268-0491

Model 2300 automatic labeler that applies pressure-sensitive computer-generated labels to envelopes and mailing



pieces in a range of sizes. Labels are placed face up on each piece. Variable address dial allows user to set label po-

sition. System applies 5000 labels an hour to number 10 envelopes. **For More Information Circle No. 219.**

Multipurpose Maps

Magna Visual, 9400 Watson Rd., St. Louis, Mo. 63126, presents magnetic write-on/write-off maps for visual control applications, including sales analysis, product distribution, dealer networks, performance data and more. Boards feature outlines of continental U.S. on a porcelain steel surface which can be written on with dry-erase liquid chalk markers and easily wiped off.

Board accepts magnetic components such as letters, numbers, symbols and ribbons for scheduling applications. Offered in three configurations, including a zone chart with dry-erase markers in



two colors to provide color-coded reference for shipping managers, a marketing analysis board with color-coded magnetic letters and numbers, and a production distribution centers board with magnetic symbols and letters. **For More Information Circle No. 205.**

Word Processing Conversion Software

Wordperfect 4.1/4.2/5.0
Microsoft Word
Wordstar
Multimate
Displaywrite-3,4
Wordstar-2000
pfs:Write
pfs:Professional
pfs:First Choice
Lotus Manuscript
Enable (WP)
WordMarc Composer
Officewriter
XyWrite
Freestyle/Select
Spellbinder
PeachText 5000
Palantir
PMate
Writing Assistant
Volkswriter
Leading Edge WP¹
PC-Write
IBM DCA/RFT
Standard ASCII

1: Conversion to Leading Edge WP not currently supported.

Using R-Doc/X™ software, you can convert document files between all these word processing programs automatically ... with printer control codes and most formatting intact!

- ✓ Runs on any MS-Dos computer, including IBM-PC, XT, AT, PS/2 and compatibles.
- ✓ Not copy-protected.
- ✓ Price (\$149) includes support for all listed formats. *And that's direct support, i.e., you don't have to go through DCA/RFT or some other intermediate format!*
- ✓ As new formats and features are added, upgrades are available to customers at nominal cost.
- ✓ Supports the extended character set.
- ✓ Multiple files may be converted in one operation, into same or different subdirectories or disks.
- ✓ Menu-driven, and very easy-to-use.
- ✓ Well-written user manual explains features of the different formats.

Price \$149. Add \$4 for shipping/handling. In NY state add 7% sales tax. MC, Visa, Amex, COD accepted. Returnable in 15 days for full refund. Dealer inquiries invited.

**No-Risk
15-day
Return!!**

Advanced Computer Innovations
30 Burncoat Way, #M3
Pittsford, NY 14534-2216
Phone: (716)-383-1939
Fax (24-hour): (716)-383-8428

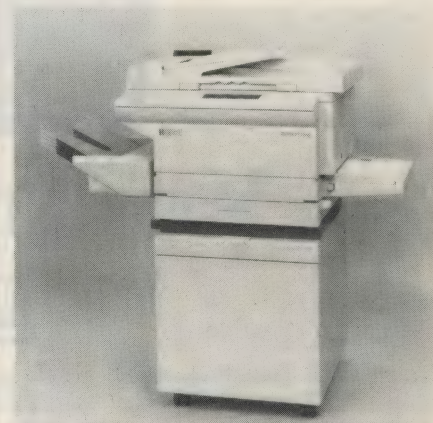


**\$149/-
Complete
Package**

Trademarks: R-Doc/X™, Advanced Computer Innovations, Inc.; MS-Dos, Microsoft Corp.; IBM, IBM-PC, XT, AT, PS/2, International Business Machines, Inc.; all other product names mentioned are trademarks of their respective manufacturers or owners.

Low-Volume Copier

Ricoh Corp., Five Dedrick Place, West Caldwell, N.J. 07006, presents the FT2260 copier with an optional automatic reverse document feeder that allows one-sided copies to be made from two-sided originals. System produces 15 copies a minute and includes a stationary



platen, zoom reduction and enlargement from 50% to 200%, and 250-sheet cassette. A 100-sheet side tray, book copy and copy interrupt modes, and color copying in red, blue or green also are offered. **For More Information Circle No. 238.**

Electronic Typewriter

Sharp Electronics Corp., Sharp Plaza, Mahwah, N.J. 07430-2135, offers the XQ-315 electronic typewriter with 500-

Norelco Pocket Memo Your Electronic Notebook



You speak 7 x faster than you write. So record all your notes, ideas and correspondence on a Norelco Pocket Memo. It's instant and you can use it anywhere. Norelco Pocket Memo- your electronic notebook.

Norelco - The Dictation Specialist.

Yes, I'm interested in knowing more about Norelco Pocket Memos and Norelco's complete line of Dictation Systems.

Name _____
 Title _____
 Company _____
 Address _____
 City _____ County _____
 State _____ Zip Code _____

Please have a representative give me a call at:

Philips Business Systems Co., 810 Woodbury Road,
 Woodbury, NY 11797

F



Norelco®

Norelco Dictation Systems
 Talk your way to the top

character correction memory, word correct and auto correct keys, and automatic editing of typographical errors. Includes 112-character printwheel in a range of



styles and pitches, automatic carrier return, indentation, three-way centering, bold print, continuous underline, decimal tabulation and 16 cps printing. **For More Information Circle No. 209.**

Facsimile Machine

Nissei Electric U.S.A., Inc., 3 Reuten Dr., Closter, N.J. 07624, presents the 5in1 facsimile system with built-in modem and software for integrating with IBM PC, XT, AT and compatibles. System functions as a stand-alone fax, scan-

ner, printer, photocopier and modem. Connects to a PC's RS232C port. Provides fax to fax transmission, fax to computer and computer to computer



transmission. Includes remote sending, sequential broadcast to multiple locations, scanning, printing, storing and transmission activity report. Compact machine is 13.5" x 9.7" x 3.8" and weighs under 10 lbs. **For More Information Circle No. 253.**

Text Exchange System

CompuScan, Inc., 300 Broadacres Dr., Bloomfield, N.J. 07003, offers the Codem 100 and 150 text-exchange systems that convert files between incompatible word processing systems. Units can be interfaced via RS232C interface or modems that facilitate remote access

to documents. Both units convert text and word processing format codes from source system to target word processor. Model 100 allows document transfer be-



tween any two word processing systems, and Model 150 connects up to eight incompatible systems. **For More Information Circle No. 475.**

Correction Material

Franklin Ribbon & Carbon Co., Inc., Box 724, Hicksville, N.Y. 11802, introduces Tabtype, an out of typewriter correction material that allows typists to make corrections by placing a sheet with the correct letter or number over an error. Each packet provides over 2000 corrections and is available in pica, elite, letter gothic and courier typestyles. **For More Information Circle No. 218.**



IS THE FEAR OF BUYING A HIGH VOLUME COPIER DRIVING YOU OUT OF CONTROL?

One wrong turn when buying a high volume duplicator could spell disaster for your company.

On the never ending journey of deciding just which vendor will meet your needs, offer the best deal and provide the necessary after-sale follow through, it's nice to know that EBU is right up the street.

If you're in the market, you've no doubt heard of Equipment Brokers Unlimited. EBU is the nation's largest marketer of reconditioned high volume duplicators. They've been providing companies like yours with reliable products at substantial savings (up to \$60,000!) off the retail list price for nearly a decade.

EBU acquires the finest high volume duplicators made by the industry leaders: Xerox, Kodak and IBM. Each machine is completely reconditioned and installed in your facility to meet all current manufacturer standards. And, once installed, each machine is also serviced by the manufacturer. With Equipment Brokers Unlimited, it's like getting a new machine, without the inflated sticker price.

Buying a high volume copier doesn't have to throw you into a tailspin. In fact, if you make your first stop at EBU, you'll be amazed at just how easy it can be.

Just call 1-800-423-2776

In California 818-707-2860



EQUIPMENT BROKERS UNLIMITED
EBU A SIGN OF THE TIMES

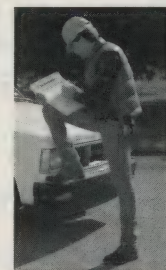
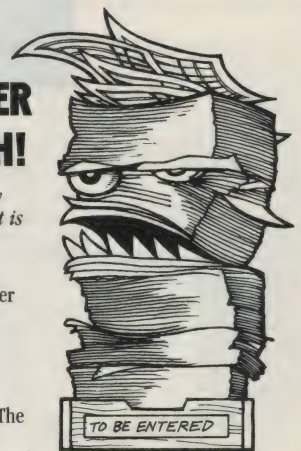
KODAK is a trademark of the Eastman Kodak Company. XEROX is a trademark of XEROX corporation. IBM is a trademark of International Business Machines Corporation.

THE FORMS MONSTER HAS MET ITS MATCH!

Finally, a way to reduce data entry cost, make data available as soon as it is written on a form and increase data accuracy.

With your standard forms, Scriptwriter and a ball point pen you immediately reduce your forms processing cost!

Hand keying of forms is eliminated. Since you capture data at the source, accuracy is increased. Scriptwriter — The Electronic Clipboard reads your hand entries (including drawings and signatures) and stores the data in its memory, to be electronically transferred to any mainframe, mini or PC.



ScriptWriter™

Scriptwriter will go where the data needs to be captured! You do not need special training!

Call 1-800-336-9979 to get more information and to place an order today!

**Technology
Solutions**

299 Herndon Parkway
Suite 206
Herndon, VA 22070

Circle Reader Service Card No. 293

Circle Reader Service Card No. 477

SHORT RUNS

GESTETNER 2355ZDF COPIER

Here's the perfect copier for short runs that includes everything you've ever asked for. Fast, at 55 copies per minute. The Gestetner 2355 automates just about everything: paper cassette selection as well as reproduction ratios, cover insertion, transparency backing sheets, and best of



all, completely automatic duplex copying from both one-sided and two-sided originals, with one touch of a button. And with a paper capacity of over 3,500 sheets, it's ready to accommodate a full day's work.

For increased productivity, and years of reliability, turn to Gestetner and the 2355ZDF console copier.

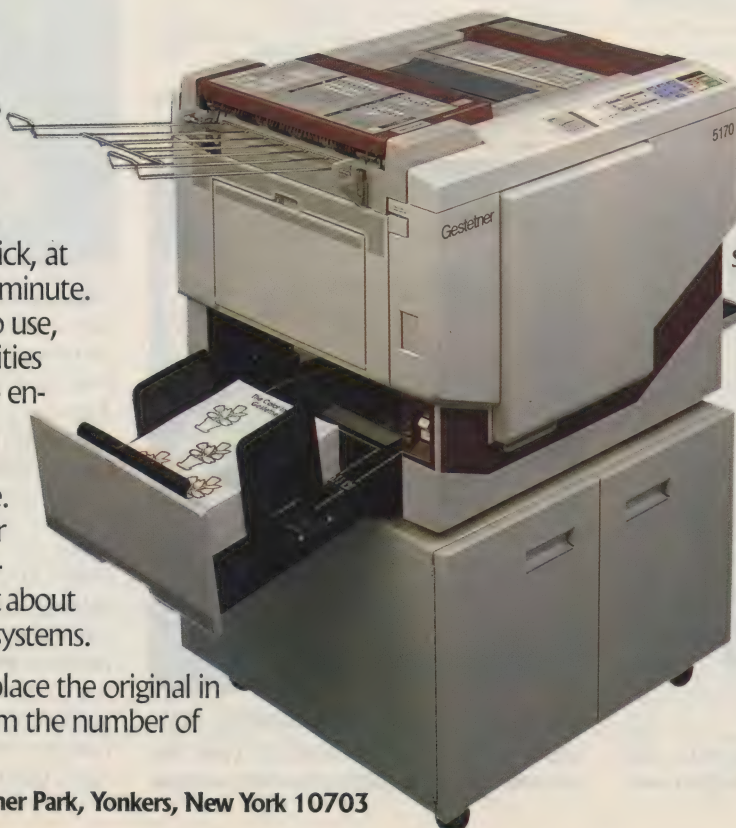
GESTETNER HAS THE EQUIPMENT TO KEEP YOU ON THE RUN!

LONG RUNS

GESTETNER 5100 SERIES

The new economical Gestetner 5100 copier-printer is perfect for the busy office. Quick, at the rate of 120 copies per minute. Fully automatic and easy to use, this system features capabilities that enable the operator to enhance originals with different backgrounds, different borders and much more. The convenience of a copier and the durability of a duplicator in one compact unit at about half the cost of comparable systems.

Push button easy . . . just place the original in the automatic feed, program the number of



copies and push the button. Ink colors can be changed neatly in seconds from black to red, blue, green or brown. So when you need long run copying—you need the Gestetner 5100.

Gestetner has over 400 branch offices and dealers nationwide to serve you.

The first name in copying..

**Gestetner
Gestetner
Gestetner
Gestetner**

Gestetner Corporation • Gestetner Park, Yonkers, New York 10703

LITERATURE

For a free copy of any item described here, circle the appropriate number on one of the reader service cards located at the front and back of this issue.

Temporary Help Service

Uniforce offers a brochure detailing its office automation services program. Explanations are given on various aspects of the service, including its phone hotline and computerized program which matches automation skills to client needs. For a copy from Uniforce Temporary Services, 1335 Jericho Tnpke., New Hyde Park, N.Y. 11040, **Circle No. 334.**

Paper Shredders

Allegheny offers an eight-page color catalog that describes its line of office paper shredders. Machines are quiet, compact and reliable for on-site destruction of confidential reports, files, computer print-outs and wastebasket contents. Featured are the J-series office shredders. Also featured are the conveyor-fed Model CJ-65, which bridges the gap between tabletop and industrial conveyor-fed shredders. For a copy from Allegheny Paper Shredders Corp., Old William Penn Highway East, Delmont, Pa. 15626, **Circle No. 335.**

Color Folders

Kardex offers a brochure describing its Expandable Variacolor folders with dur-



able color-coded Tyvek gussets that allow each folder to expand up to one-

and-a-half inches. Constructed from 20-point Variacolor stock, folders are designed to hold voluminous files and are available in alpha, numeric and full end-tab systems. Letter and legal sizes are also available. Folders come in ten colors. For a copy from Kardex Systems, Inc., Box 171, Marietta, Ohio 45750, **Circle No. 336.**

High-Speed Duplicator

A duplicator that produces 135 copies per minute and binds books on-line is the thrust of a 10-page color brochure from Xerox. Brochure explains how the Model 5090 establishes benchmarks for copy quality, productivity, reliability and more. Many of the duplicator's features are detailed, including on-line binding and stitching, automatic duplexing, document-handling and reduction/enlargement. Also covered are technical specifications. For a copy from Xerox Corp., Xerox Sq. 05B, Rochester, N.Y. 14644, **Circle No. 337.**

Paper Shredders

A 24-page brochure detailing the why and how of choosing a paper shredder

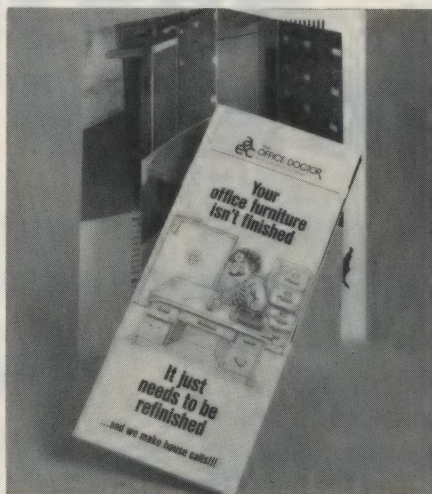


is offered by Michael Business Machines. Brochure also features information on the company's desktide central

office, continuous data processing and high-capacity shredders. Specifications for the 30 models and a simple technical data chart are also provided. For a copy from Michael Business Machines Corp., 54-21 48th St., Maspeth, N.Y. 11378, **Circle No. 338.**

Furniture Refurbishing Service

A color brochure explaining how a company can save money by using an on-site office refurbishing program is offered by American Electro Coatings. Literature says a company can save 80% to 90% of the cost of purchasing new office furniture. Brochure features before and after project photos of various office equipment, as well as a selection of



color-coordinated paints, laminates and fabric swatches to choose from. The company provides service during off-peak hours or at night. For a copy from American Electro Coatings, 160 Northfield Rd., Cleveland, Ohio 44146, **Circle No. 339.**

Graphic Tools

Grad Technology presents a 55-page catalog that discusses graphic tools and when they are best used. Items covered include graphic, utility and font software, clip art and printing presentation accessories. For a copy from Grad Technology, 1086 E. Meadow Circle, Palo Alto, Calif. 94303, **Circle No. 340.**

Helpful Literature From Advertisers

Items described here are offered without charge by
advertisers in this issue. Use reader service cards.

Acoustical Enclosures

445. Bud-Jet Line acoustical enclosures reduce printer noise up to 90%, vendor claims. Models are available for 80 and 132-column machines. By MKM.

Adhesive Tags

412. Redi-Tag removable adhesive tags are available in 16 bright colors and three sizes for adding a personal message to documents. By Barbara Thomas Associates.

Antistatic Cloth

413. Statkleer computer cloths are chemically treated to effectively clean dust and static from CRT screens, vendor claims. By Evans Specialty Co.

Clustered Furniture

443. The Kalidascope 360 furniture system features an arrangement of up to six work stations clustered around a center stem. Offers 40% more work area in less overall floor space than conventional systems, company claims.

Color Press

414. An offset duplicator equipped with the T-51 color press provides fast two-color, one-pass printing in perfect register, company claims. Townsend Industries.

Conversion Programs

415. M/H Group makes Archive-Link, W-Link, VsCom and Word-Link products that convert documents between WordPerfect and Wang or other PC word processing packages.

Copying Machines

416. Savin claims to be the third largest mid-volume copier company in the country and offers a range of machines, including those that copy to units that reduce, enlarge, collate, copy on two sides or in color.

Dictation Systems

446. The Norelco Pocket Memo is a portable dictation system for instant recording of notes, ideas and correspondence. From Philips Business Systems.

Disk Reader

417. The Disk Reader by CompuScan con-

verts documents from 8" disks into PC word processing formats. Text and format codes are also automatically converted to meet specific system requirements.

Electronic Typewriters

418. Electronic typewriters from Swintec feature keyboards with contoured keys for easy typing.

Facsimile Machine

419. Increase productivity with a facsimile system from Konica. A range of models is available to meet the needs of any business.

Facsimile Paper

420. The Accufax warranty promises that its facsimile paper will perform equal to or better than your facsimile manufacturer's product, or your money back. From Paper Manufacturers Co.

Font Cartridges

421. InterFont font cartridges from Intercon Associates offer 1Mb of storage and are available in six models for use with most Hewlett-Packard and other laser printers using Canon CX and SX engines.

Identification Tags

422. Name plates and labels that provide permanent property identification are available with indented serial numbers or bar codes in a wide selection of substrates, adhesives and sizes. From Metalcraft.

Office Boards

423. Quartet makes Oval Office series boards in a range of materials and configurations. Mark 'N Wipe, cork boards, chalk boards and Re-Mark-Able boards feature bronze metallic frames, and fabric-covered models have hardwood frames.

PC Rentals

424. Genstar Rental Electronics offers a free brochure on its personal computers, which are for rent nationwide. Includes models from IBM, Apple and Compaq.

PC-Fax Boards

441. Microfax add-on fax boards add facsimile system capabilities to a personal com-

puter. Operate simultaneously while other programs are running for maximum productivity. From Datacopy.

425. Send and receive facsimile messages directly from a PC using the JT Fax internal and portable 4800 baud models, or the 9600 baud with optional modem daughter card. By Quadram.

Records Management Program

426. "Frolic" records management software uses bar codes and on-line tracking functions to manage records on any media. It also maintains record security by limiting file access. From Wright Line.

Rubber Stamps

427. Xstamper rubber stamps are self-inking and can be customized with messages, addresses, signatures or logos. From Shachihata.

Scaleable Type

442. Bitstream offers over 50 different typeface packages, each with four distinctive typefaces. Compatible with most leading MS-DOS word processing and desktop publishing programs.

Stamp Affixer

428. Postage stamp affixer from Postmatic offers direct mail a personal look that meters and indicia do not, vendor claims.

Surge Protectors

444. Panamax surge protectors come with a lifetime warranty that guarantees free repair or replacement of any fax machine, copier or office machine damaged by a transient power surge while properly connected to the device.

Telephone System

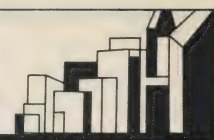
429. The Electra 8/24 comes with over 80 advanced features, including hands-free answer-back on intercom calls, system and station speed dialing, conferencing and more. By NEC.

Temporary Help

430. Uniforce temporary personnel are performance-guaranteed and available in hundreds of skill categories.



NEWS OF THE OFFICE



IBM, Siemens in Pact

International Business Machines Corp. and Siemens Information Systems have announced plans for a series of joint activities in the field of telecommunications products for private networks.

Key elements include the establishment of a marketing and services company, ROLM, jointly owned by the companies, which will offer telecom products for private networks in the U.S.; establishment of ROLM Systems, Inc., a wholly owned subsidiary of Siemens; marketing of a Siemens-manufactured PBX product in Europe by IBM subsidiaries; continued marketing by IBM of the 9750 business communication system and other ROLM products in Canada, Japan, Hong Kong and other countries, and the joint design of advanced voice/data telecommunication applications.

H. Mitchell Watson Jr., IBM vice president, marketing and service, will become president and CEO of ROLM.

3M Sells a System

Officials of the 3M Commercial Office Supply Division, St. Paul, Minn., announced the sale of the Scotch Brand binding system business to Vital Presentation Concepts, also of St. Paul. Introduced in 1987, the system was developed to bind up to 25 sheets of paper for presentations and reports. The Vital organization, a marketer and manufacturer, services dealers.

Toner Business Acquired

Olin Hunt Specialty Products Inc., a West Paterson, N.J.-based subsidiary of the Olin Corp., Stamford, Conn., has acquired the toner business of BASF of West Germany. The acquisition includes all of BASF's toner business assets and technology, as well as a production facility in Stuttgart, according to James Mulvihill, business director for the Olin Hunt Electrostatic Business Group.

Alcatel Purchased

Acquisition of Alcatel Information Systems, Tempe, Ariz., has been announced by IDEAssociates, Inc., Billerica, Mass. IDEA develops and manufactures PC communication products and terminals for the IBM System 3X and AS/400 midrange computers. Alcatel produces terminals, controllers and printers for IBM's mainframe systems.

Purchase Completed

Code-A-Phone Corp., Portland, Ore., has completed its acquisition of the GTE Consumer Communications Products Corp. of Greenwich, Conn.

Correction

Two illustrations at the top of page 48 (THE OFFICE, Dec. 1988) were inadvertently printed upside down. Our apologies to the author, John C. Mudgett.

Want to take-off in the computer and communications field?



IN THE NEWS

Thomas M. Isola has been appointed president and CEO of the International Envelope Co., Aston, Pa.

Hideharu Takemoto has been named president of Canon U.S.A., Lake Success, N.Y., succeeding **Fujio Mitarai**, who becomes vice chairman.

Robert A. Radie has been named executive vice president for sales by Konica Business Machines U.S.A., Inc., according to **Sho Kamiisaka**, president and CEO of the Windsor, Conn. company.

James E. Kirby has been named senior vice president of sales and marketing by Bush Industries, Inc., a James-town, N.Y. office furniture manufacturer.

Dallas L. Talley has been appointed president of TeleVideo Systems Inc., a Sunnyvale, Calif.-based manufacturer of computers and terminals, according to **K. Philip Hwang**, chairman and CEO.

Brian Merriman has been named

executive vice president for sales and marketing by the Savin Corp., according to **William T. Smith**, president and chief operating officer.

John J. Barry has been named president and chief operating officer of VM Software, Inc., Reston, Va., according to **Robert E. Cook**, chairman and CEO.

Robert K. Weiler has been appointed president and chief operating officer of Cullinet Software, Inc., Westwood, Mass., according to **John J. Cullinane**, chairman/CEO.

Jamie Etter has been named sales and marketing manager for the computer products division of SL Waber Inc., a Mount Laurel, N.J. manufacturer of power protection devices.

Kenneth F. Wiedeman has been appointed director of marketing by Sony Magnetic Products Co., and **Michael Korizno** named director of sales, floppy disk products. The company is in Park Ridge, N.J.

Nancy Gehring has been named na-

tional advertising and promotions manager for the Document Imaging Systems Division of the Minolta Corp., Ramsey, N.J., according to **Tadashi J. Yokota**, vice president and general manager.

Peter M. Lindley has been appointed vice president of sales and marketing by the Sunroc Corp. of Glen Riddle, Pa., says **Anthony A. Salamone**, president.

Gerald J. Friesenecker has been appointed national sales manager for the General Line Group of the Richards-Wilcox Division of White Industries.

Robert J. Redding has been named director of sales, and **Gary L. Zoeller** named national sales manager of the Bretford Manufacturing Co., a Schiller Park, Ill. producer of wood and metal furniture for offices.

Paper Manufacturers Co., Cincinnati, has appointed **Robert N. Watkins** as vice president of sales and marketing, and **Henry E. Schmidt** as vice president/national sales manager of its Office Products Division.

More Learning • More Contacts • More New Products

Land yourself here.

INTERFACE '89 Plus. The one computer and communications show that delivers more new ideas, information, new products and important contacts than any other. It's your best chance in 1989 to network and compare notes with the top people in the industry.

Here's what you can expect:

New Product SHOWSTOPPERS: Look for the bright red SHOWSTOPPER signs at INTERFACE '89 Plus. That's where you'll find the new products. And there'll be lots of them!

More than 350 exhibits: You'll see the full spectrum of products and services for voice, data and image processing, storage and transmission...minicomputers, PCs, mainframes, modems, multiplexers and much more! Everything related to computers and communications—on display at INTERFACE '89 Plus.

INTERnetSM: See continuous live demonstrations of fiber-optics-based multi-vendor/multi-network interoperability. Complete and fully functional. Only at INTERFACE '89 Plus.

Important Conferences: Leading computer and communications industry experts will share their facts, insights and experiences with you. INTERFACE '89 Plus gives you more than 60 session topics to choose from!...so you can put timely, new information to work for your business!

If you can go to only one trade show in 1989, make it...

INTERFACE '89

March 13-16
Javits Convention Center
New York City

CROSSROADS OF COMPUTERS & COMMUNICATIONS...VOICE, DATA, IMAGE

Co-sponsored by
BusinessWeek and **Data Communications** Magazines

Produced by

☒ **THE INTERFACE GROUP, Inc.**
300 First Avenue, Needham, MA 02194 USA

Make your flight plans today!

To get complete registration and travel discount information, mail in the coupon today. It's the only ticket that can land you right in the middle of the computer and communications field.

FAX (617) 449-6953 or write TODAY!

I'M READY TO TAKE OFF. Send me OF29
information about registration and airfare
discounts up to 70% for INTERFACE '89 Plus.

Name

Title

Company

Address

City

State Zip

Telephone Telex

Return to: INTERFACE '89 Plus, Registration,
300 First Ave., Needham, MA 02194 USA

INTERnet, the world's premier network demonstration facility, is engineered and managed by Allied Data Communications, Norcross, GA.

© 1988 The Interface Group, Inc.

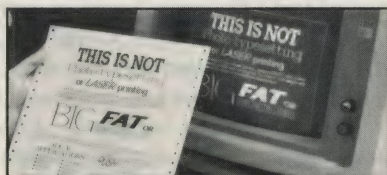
GOOD IDEAS Type-Set-It™

LOW-COST DESKTOP PUBLISHING

*"Business Quality" typesetting
on a dot-matrix printer*

Affordable for low-volume users
Uses inexpensive IBM-PC equipment

- For newsletters, flyers, visuals, lists, ads, etc.
- Full page make-up, up to 50 columns per page
- 96 sizes from 1/16" to 1-1/2" in 1296 styles
- Interactive, true font display (WYSIWYG)
- Unlimited positioning and mixing of type fonts
- Includes 124,000 professionally designed type fonts



The type and rules in this ad were set on a dot-matrix printer.

\$395 price • Fits any budget • Full money-back guarantee • Quick to learn • Easy to use • No coding to learn • No mnemonics to use • Fast payback
Easy to justify price • 240 dots/inch on 9-pin dot-matrix printers • 360 dots/inch on 24-pin printers
360 dots/inch on IBM Quietwriter II or III • Forms composition package • 26 weights of rules and boxes
Imports files from all word processors and data bases

Requires an IBM-PC/XT/AT, PS-2 or compatible, 512k RAM, and an IBM or Epson compatible dot-matrix printer. A trial disk with the entire program (but prints the letters E and S backwards) is available for \$10. Send for literature and samples or order direct from the developer.

ORDER BY MAIL OR PHONE Send \$395 check or Money Order.
MasterCard, Visa, COD or approved P. O. Mass add 5% tax.

(508) 475-7238

GOOD IDEAS ■ 175 Lowell St ■ Andover MA 01810

Circle Reader Service Card No. 332

Is Shredding This Simple?

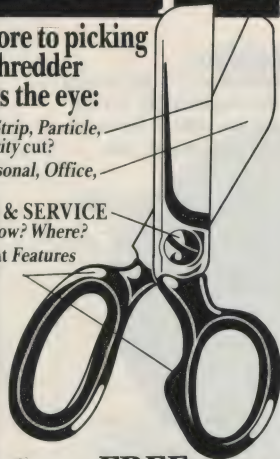
There's more to picking
the right shredder
than meets the eye:

TYPE Strip, Particle,
or Security cut?

SIZE For Personal, Office,
or Plant use?

PARTS & SERVICE
Who? How? Where?

DESIGN What Features
are important?



GUIDE TO
PAPER SHREDDING

FREE
Guide to Shredding
to help you pick
the right shredder for your
needs. Call today:

1-800-621-5528
(In IL: 312-299-9550)

CUMMINS
CUMMINS-ALLISON CORP.

One Cummins Center • Mt. Prospect, IL 60056

Circle Reader Service Card No. 296

NATIONAL CONFERENCE & EXHIBIT CALENDAR

(Information telephone numbers are provided if available)

Communication Networks Conference & Exposition, Convention Center, Washington, D.C., Feb. 6-8. **508/879-0700.**

American Facsimile Assn., Conference, Los Angeles, Feb. 8. **215/568-8336.**

NETWORLD '89 Boston, Hynes Convention Center, Boston, Feb. 28-Mar. 2.

Federal Office Systems Expo (FOSE), Convention Center, Washington, D.C., Mar. 6-9. **703/683-8500.**

Interface '88 World Congress on Computing, Javits Convention Center, New York City, Mar. 13-16. **617/449-6600.**

Comdex/Spring, McCormick Place, Chicago, Apr. 10-13. **617/449-6600.**

National Computer Graphics Assn., Annual Conference, Civic Center, Philadelphia, Apr. 16-20. **800/225-6242.**

Federal Computer Conference, Anaheim, Calif., Apr. 25-28. **301/961-6575.**

International Communications Assn. (ICA), Annual Conference, Dallas, Apr. 30-May 5. **214/233-3889.**

Assn. for Systems Management, Annual Conference, Fairmont Hotel, Dallas, May 7-10. **216/243-6900.**

Assn. of Data Processing Service Organizations (ADAPSO), Spring Conference, San Diego, May 14-17. **703/683-8500.**

Business Forms Management Assn., Annual Symposium, Westin Crown Center, Kansas City, Mo., May 14-18. **503/227-3393.**

New York Secretary Show, Madison Square Garden, May 16-18. **800/525-7585.**

In-Plant Management Assn., Annual Conference, Hyatt Regency Hotel, Kansas City, Mo., May 16-19. **816/781-1111.**

Society of Telecommunications Consultants, Annual Conference, Dallas, May 19-21. **212/582-3909.**

Government Workplace Trade Show, Convention Center, Washington, D.C., May 24-25. **800/451-6224.**

Administrative Management Society, Annual Conference, Los Angeles, May 27-30. **215/953-1040.**

Assn. for Information and Image Management (AIIM), Annual Conference, Moscone Center, San Francisco, June 5-8. **301/587-8202.**

International Facility Management Assn. (CAFM '89), Anaheim (Calif.) Marriott Hotel, June 6-8. **713/623-4362.**

Assn. of Data Communications Users, Marriott Copley Place, Boston, June 11-14. **612/881-6803.**

NEOCON, Merchandise Mart, Chicago, June 13-16. **312/527-7550.**

PC Expo, Javits Convention Center, New York City, June 20-22. **201/569-8542.**

Assn. of Information Systems Professionals (SYNTOPICAN), Orlando, Fla., June 25-29. **312/940-8800.**

American Society of Interior Designers, Annual Conference, San Francisco, July 19-22. **212/944-9220.**

National Office Machine Dealers Assn. (NOMDA), Annual Convention, New Orleans, July 19-22. **816/941-3100.**

World Computer Congress, American Federation of Information Processing Societies, Moscone Center, San Francisco, Aug. 24-Sept. 1. **303/831-6338.**

Nuclear Information & Records Management Assn., Annual Symposium, Marriott City Center, Minneapolis, Aug. 27-30. **305/566-5635.**

Workspace, San Francisco, Sept. 6-7. **415/558-8544.**

National Office Products Assn. (NOPA), McCormick Place, Chicago, Oct. 4-7. **703/549-9040.**

Events Abroad

Hanover-CeBIT, Hanover, Mar. 8-15.

ADVERTISERS

ACL	11	NEC America, Inc. (Facsimile)	60	Security Engineered Machinery	4
AISP International	102	NEC America, Inc. (Telephone System)	26	Shachihata Inc.	57
AT&T (Facsimile)	29	OMNIFAX/Telautograph	2	Sharp Electronics Corp.	75
AT&T (Guide)	81	Pacific Data Products	50	Southwestern Bell*	58-59
Advanced Computer Innovations	104	Panafax Corp.	19	Swintec Corp.	16-17
Allegheny Paper Shredders Corp.	56	Panamax	37	TAB Products Co.	31
Ameri-Shred Corp.	62	Panasonic Industrial Co.	43	Technology Solutions	106
Beach Publishing Co.	61	Paper Manufacturers Co.	10	TempForce, Inc.	5
Bell & Howell Company	Cover 4	Perma Power Electronics, Inc.	30	Townsend Industries	54
Biscom, Inc.	30	Philips Business Systems Co.	105	Trans-Lux Corp.	103
Bitstream Inc.	25	Pitney Bowes, Inc.	14	Uniforce Temporary Services	49
Bretford Manufacturing, Inc.	90	Polaroid Corp.	13	Varitronic Systems, Inc.	4
Cable Electronics	32	Postmatic, Inc.	63	Waber, Inc., SL	86
Canon U.S.A., Inc. (Facsimile)	20-21	Quadram	64	Wierner's, Inc.	30
Canon U.S.A., Inc. (Micrographics)	73	Quartet Manufacturing Co.	Cover 3	Wilson Jones Co.	91
Charnstrom Co., W. A.	48	Redi-Tag	84	Winsted Corp.	62
CompuScan Inc.	54	Rich Lee International, Ltd.	113	Wright Line, Inc.	101
Cummins-Allison Corp.	112	Ricoh Corp.	52	Hello Direct*	Supplement A
Curtis Manufacturing Co., Inc.	1	Rolodex Corp.	79		
Datacopy Corp.	92	Savin Corp.	87		
Dennison Monarch	44	Scriptomatic Inc.	82		
Dytel Corp.	7				
Eastman Kodak Copy Products	51				
Entrepreneurs' Library	61				
Equipment Brokers Unlimited	106				
Evans Specialty Co., Inc.	53				
Federal Express Corp.	8-9				
General Business Forms, Inc.	98				
Genstar Rental Electronics, Inc.	39				
Georgia-Pacific	97				
Gestetner	107				
Good Ideas	112				
Hamilton Sorter Co., Inc.	71				
Hammermill Papers	77				
Intercon Associates, Inc.	89				
Interface Group, Inc.	110-111				
Kardex Systems, Inc.	83				
Konica Business Machines U.S.A., Inc. (Copiers)	99				
Konica Business Machines U.S.A., Inc. (Facsimile)	Cover 2				
Lanier	47				
3M	41				
M/H Group	55				
MKM Mfg., Inc.	63				
Magna Visual, Inc.	48				
Mannesmann Tally	23				
Martin Yale Industries, Inc.	56				
Metalcraft, Inc.	11				
Moore Business Products (Forms)	35				
Moore Business Products (Insert) ...	33-34				

* Regional



**THE NEW
BOX
HANDLER™**
**SOLVES YOUR
LIFTING PROBLEMS!**
Now easily lift any
heavy box without strain.

- Attaches to any cardboard container, with or without flaps.
- Attaches & removes in seconds.
- Push it on. Pick it up. That simple.
- Medically Beneficial.
- Helps avoid back strain.
- Reusable.
- Can be left on till box is empty.
- Does not interfere with paper flow.

Order your set of
BOX HANDLERS™
today for only

\$24⁹⁵

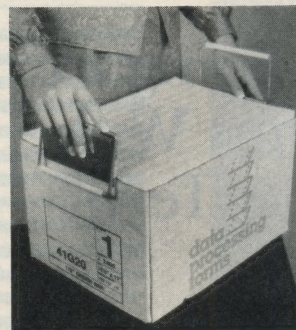
Plus \$1.95 Shipping
& Handling

*Internationally Patented



RICH LEE
International Ltd.

P.O. BOX 521306, MIAMI, FL 33152
U.S.A. — TEL.: (305) 371-4046



The Office

AS WE SEE IT

Fax: Is A Trend in The Offing?

Many years ago, the telecommunications manager of a major chemical firm predicted that facsimile—at the time a dormant technology awaiting the refinements and improvements that would mark its major emergence in recent years—will always be with us. We may not recognize it as such, he felt, since it might be merged with computers or other office devices. But it would always be there. Prophetic words, indeed.

According to International Data Corp., the domestic installed base has passed the one million mark, and Group III unit shipments will reach nearly 450,000 this year. Not bad for a technology that most people knew nothing about or used reluctantly a few short years ago. (Remember six-minute transmissions and the smell of burning paper?)

IDC postulates that facsimile is merging into the mainstream of corporate information networks, with vendors permitting users to integrate the technology as a reception/delivery option on computer-based electronic mail and telex networks, minibased office systems, LANs and optical storage-based imaging systems. Do we detect a trend in the offing? IDC certainly thinks so, contending the merging of facsimile into electronic mail is part of a broader gravitation toward blurring the lines among several formerly distinct messaging environments.

Facsimile is also linking up with compound document management systems, an area IDC projects will rapidly blossom into a major market. This connection will permit users to specify facsimile as an option for receiving or delivering files from optical storage. There is more about this marvelous technology to be found in this issue.

Coming to Terms With 'The Term'

According to G. C. Merriam, publisher of Merriam-Webster dictionaries, "computer virus" was the term of the year for 1988.

These insidious programs, which enter a computer via software or over telephone lines, take control of a machine's operations and have the potential to destroy data.

Despite its notorious popularity, the term arrived too late for inclusion in the dictionary's latest edition. However, it will remain a familiar expression and a concern to organizations and individuals who rely on computers.

In upcoming issues, THE OFFICE will be looking at the facts behind this phenomenon and its impact on the way business manages information. It is our hope that increased awareness of this debilitating danger will lead to enhanced systems security.

IF YOU THINK ALL BOARDS ARE CREATED EQUAL...



THINK AGAIN.

Quartet makes a world of difference.

Introducing a Quartet creation—a dynamic, totally new design for the Oval Office series that performs better and looks better than any radius-cornered board seen before.

New bronze metallic frames unite the strength of steel with elegance of style for Oval Office cork boards, Mark 'N Wipe boards, chalk-boards, and Re-Mark-Able boards. Internal hardwood frames provide incredible strength for the fabric covered bulletin boards.

The structural strength of these new frames prevents warping. And together with superb writing and erasing surfaces, thicker, more resilient cork, and an array of sophisticated fabric colors—the Oval Office series creates a dimension of excellence that takes these boards way beyond the usual.

Uncompromising product integrity.

Unparalleled quality in construction, materials, and craftsmanship.



QUARTET[®]

Creating a world of difference.

Quartet Manufacturing Co. 5700 Old Orchard Road, Skokie, Ill. 60077 312-965-0600
14101 Park Place, Cerritos, California 90701 213-926-3722

Circle Reader Service Card No. 431

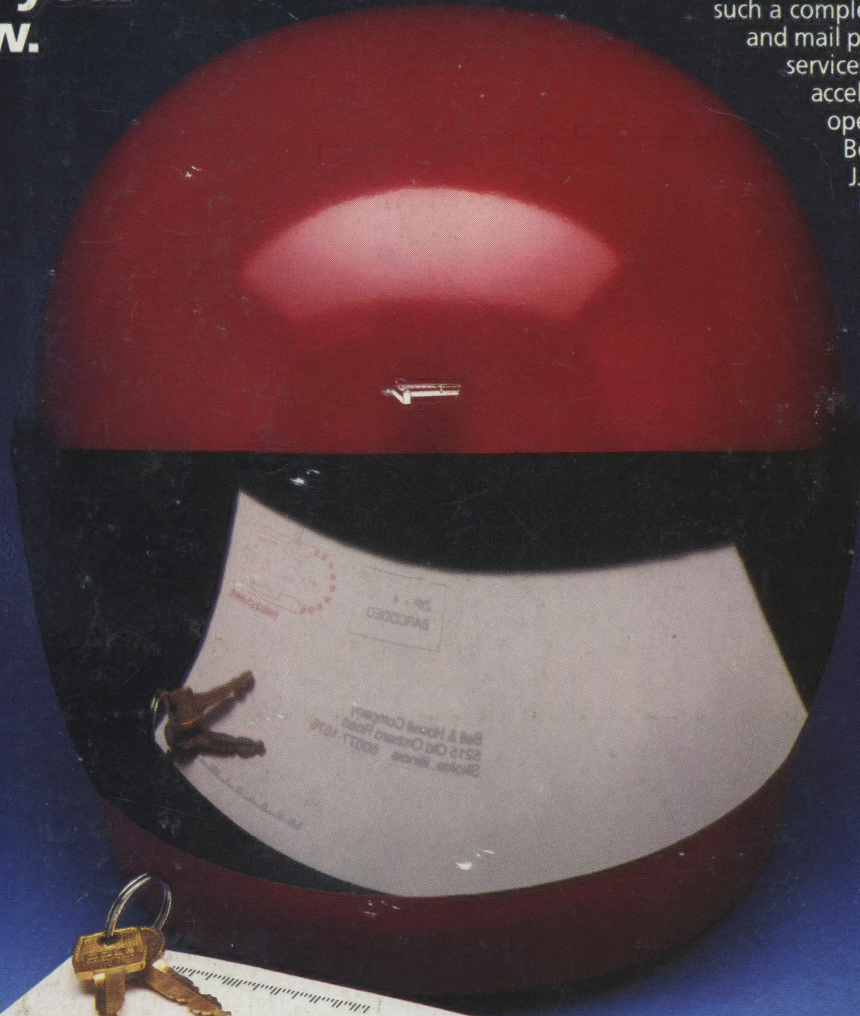
© 1988 Quartet Manufacturing Co.

ACCELERATORS

Our Mail Sorting and Encoding Systems work together to "rev up" your cash flow.

When you're racing to process volumes of mail each day, you need all the help you can get. That's why Bell & Howell Mail Sorting Systems are built to bring you advantages you wouldn't expect. Advantages like the power to presort your outgoing mail, so you can enjoy significant USPS discounts. Or the ability to rapidly scan pre-printed return envelopes (or those you've precoded with our Mail Encoding System) and separate them from other incoming mail. Enabling you to process payments and documents faster, boosting your cash and information flow.

From inserting, weighing, encoding and sorting to mail delivery and return mail processing, no other company offers you such a complete selection of document and mail processing systems and services. So if you're ready to accelerate your mail processing operation, call the experts at Bell & Howell. Contact J. Lewis, Bell & Howell Company, 5215 Old Orchard Road, Skokie, Illinois 60077-1076, (312) 470-7100.



BELL HOWELL